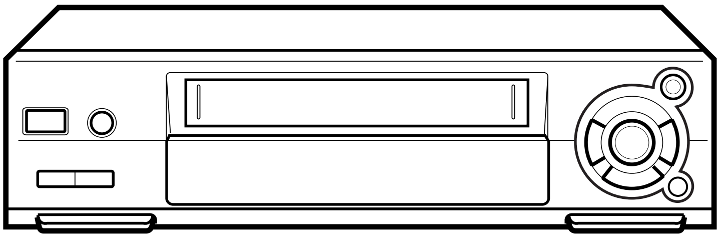
HV-GX950 K
HV-GX900 K



SERVICE MANUAL

VIDEO CASSETTE RECORDER   BASIC TAPE MECHANISM : OVD-6

SPECIFICATIONS

POWER REQUIREMENTS	230 V AC, 50 Hz
POWER CONSUMPTION	14W
WEIGHT	3.5 kg (7.7 lbs.)
DIMENSIONS	380 mm (W) x 267 mm (D) x 95 mm (H) (15 x 10 5/8 x 3 3/4 in.)
OPERATING TEMPERATURE	5°C to 40°C
VIDEO RECORDING SYSTEM	Rotary 2 head helical scanning system
VIDEO SIGNAL SYSTEM	PAL colour system, 625 lines, 50 fields
VIDEO HEAD	Azimuth 2 heads
USABLE CASSETTES	VHS video cassette
CHANNEL COVERAGE	UHF: 21 to 69
RF OUTPUT	UHF channels between 23 and 69, 73 dBµ
HORIZONTAL RESOLUTION	240 lines
TIMER BACKUP	30 minutes
TUNER SYSTEM	Frequency synthesized tuner
TV SYSTEM	I
TAPE SPEED	PAL SP: 23.39 mm/sec LP: 11.69 mm/sec NTSC (playback only) SP: 33.35 mm/sec
RECORDING/PLAYBACK TIME	PAL SP: 5 hours with E-300 tape LP: 10 hours with E-300 tape NTSC (playback only) SP: 3 hours 30 minutes with T-210 tape
VIDEO INPUT	1.0 Vp-p, 75 ohm, unbalanced
VIDEO OUTPUT	1.0 Vp-p, 75 ohm, unbalanced
VIDEO S/N	53 dB (nominal)
AUDIO INPUT	–3.8dBs, 50K ohm
AUDIO OUTPUT	–3.8dBs, less than 1 Kohm
AUDIO TRACK	1 track (Mono)
FAST-FORWARD TIME	135 seconds with E-180 tape
REWIND TIME	108 seconds with E-180 tape

- **Design and specifications are subject to change without notice.**

aiwa

S/M Code No. 09-975-331-5N1

DATA

TABLE OF CONTENTS

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

IMPORTANT NOTICE

The remote control for this model can be selected the Custom code 1 and Custom code 2.
• How to selection;

Custom code 1 : Press the Power key and 1 key on the remote control simultaneously for more than 2 seconds.
Custom code 2 : Press the Power key and 2 key on the remote control simultaneously for more than 2 seconds.

The Custom code 1 is only available for the VCR unit but the Custom code 2.
When selected the Custom code 2 by mistake, just remove the batteries from the remote control for the moment or select the Custom code 1 as described above.

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: TOP CABINET, FRONT CABINET AND OPERATION 1, 2 PCB (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connectors: (CP651 and CP652).
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 3 screws ③ and remove the Operation 1 PCB.
7. Remove the 4 screws ④ and remove the Operation 2 PCB.

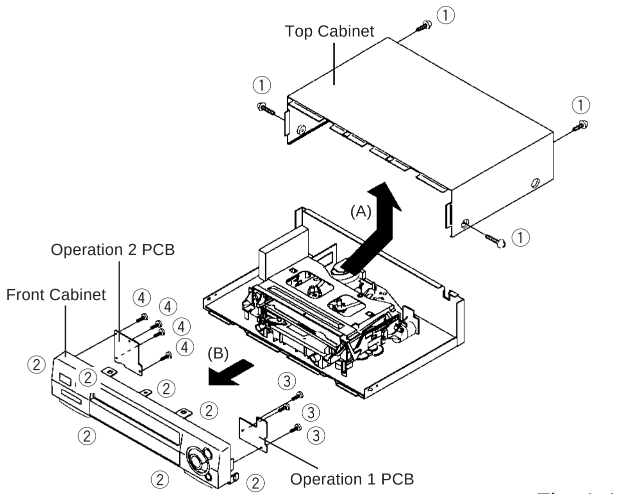


Fig. 1-1

1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

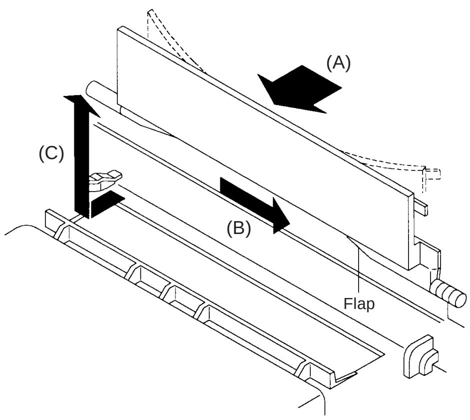


Fig. 1-2

1-3: DECK CHASSIS (Refer to Fig. 1-3)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Disconnect the following connectors: (CP1001, CP1002, CP1004, CP4001 and CP4002).
4. Remove the Deck Chassis in the direction of arrow.

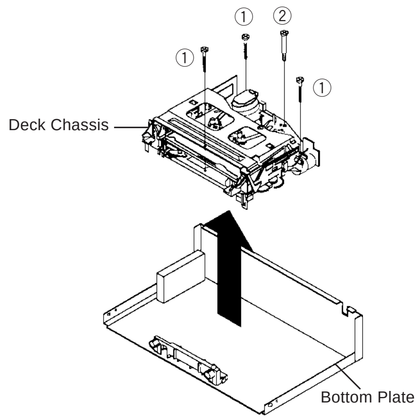


Fig. 1-3

1-4: SYSCON PCB

HV-GX900K (Refer to Fig. 1-4-A)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the 2 screws ③.
4. Remove the Syscon PCB in the direction of arrow.

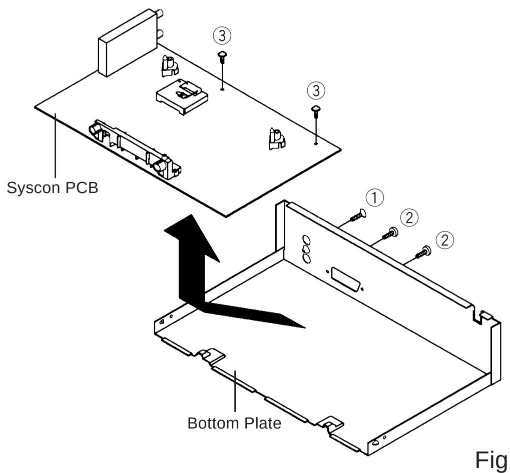


Fig. 1-4-A

HV-GX950K (Refer to Fig. 1-4-B)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the 2 screws ③.
4. Remove the Syscon PCB in the direction of arrow.

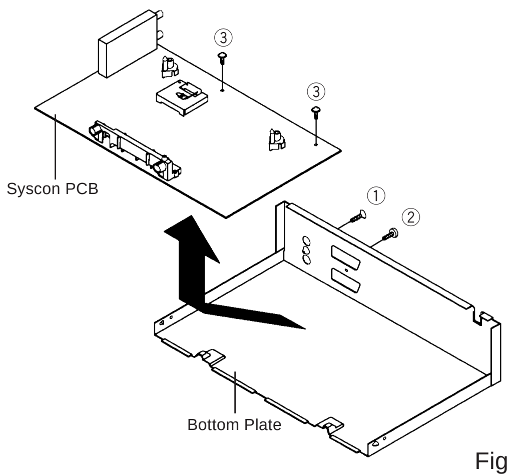


Fig. 1-4-B

DISASSEMBLY INSTRUCTIONS

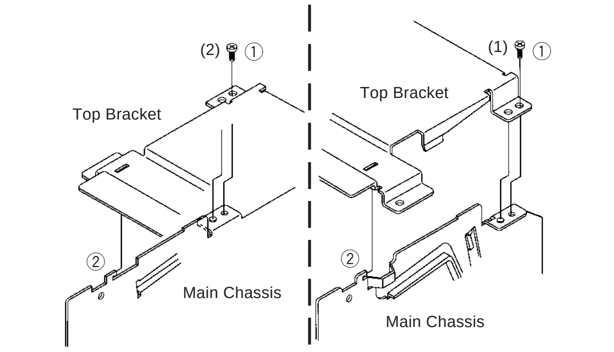
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: DECK COVER/FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the support ① and remove the Deck Cover.
3. Remove the Polyslider Washer ②.
4. Unlock the support ③ and remove the Flap Lever.
5. Unlock the 3 supports ④ and remove the Tape Guide R.

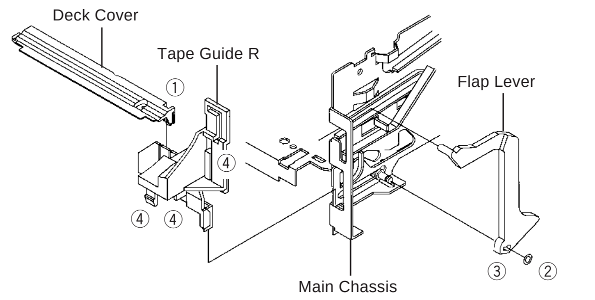
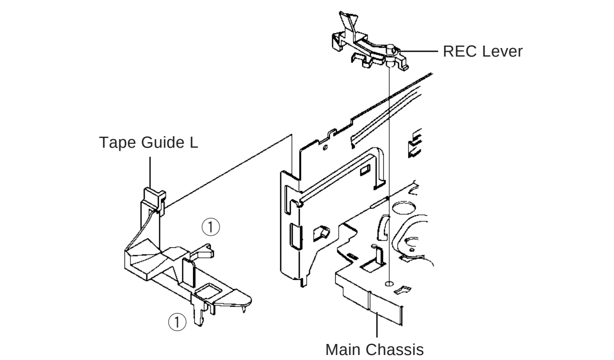


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

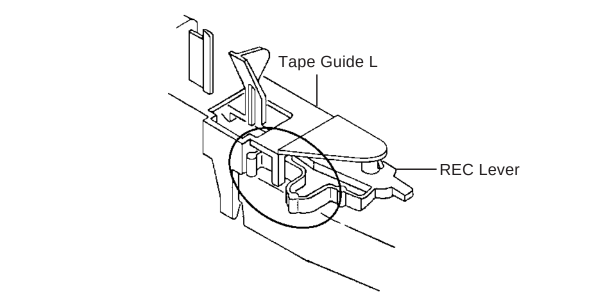


• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

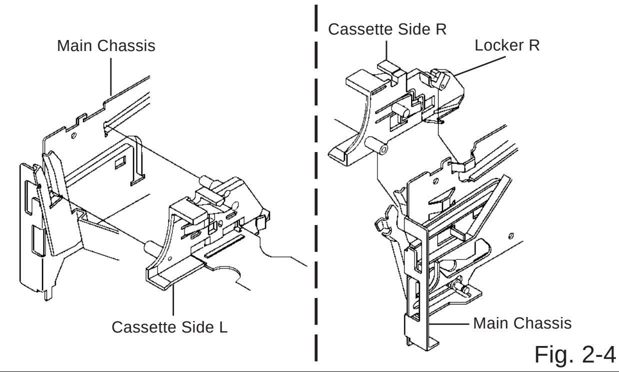


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side L/R, be sure to move the Locker L/R after installing.

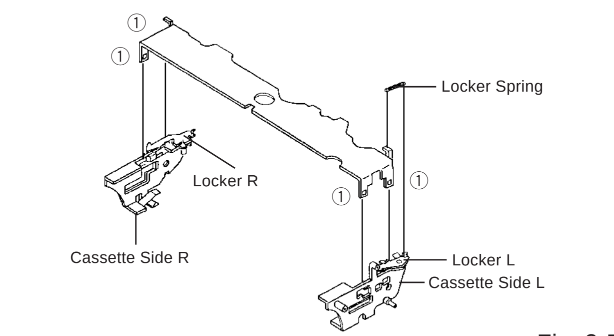


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

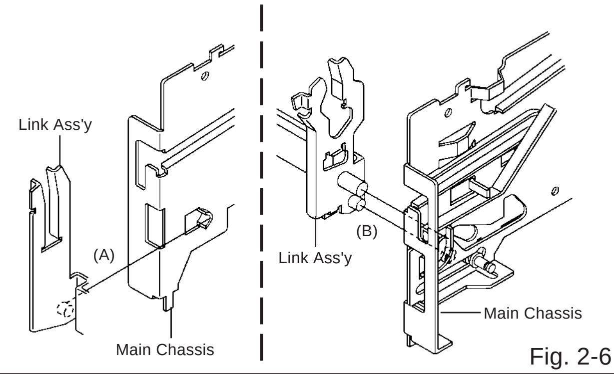
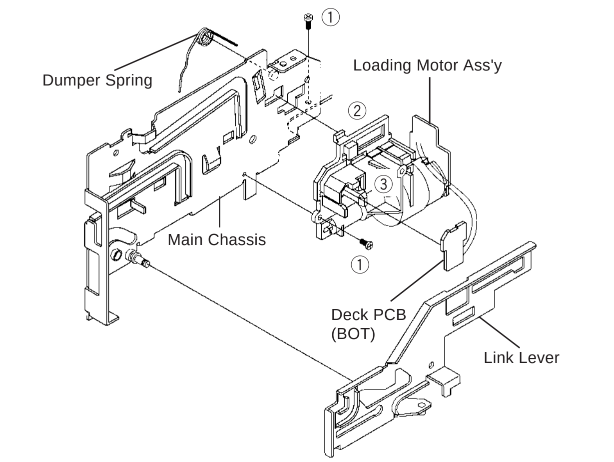


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).



• Screw Torque: 5 ± 0.5kgf•cm
Fig. 2-7

2-8: SENSOR COVER L (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L.
2. Unlock the 2 supports ② and remove the Deck PCB (EOT).

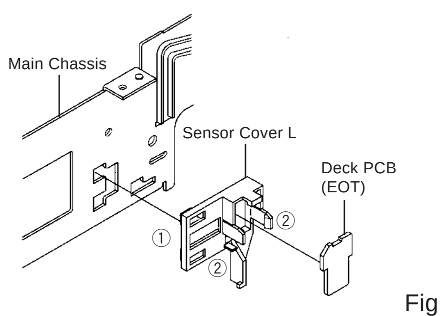


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

1. Move the Inclined S Ass'y to the back side.
2. Unlock the support ① and remove the S Reel Stopper.
3. Remove the Tension Spring.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Remove the Tension Adjust.
6. Unlock the 2 supports ③ and remove the Tension Band Ass'y.
7. Unlock the support ④ and remove the Tension Holder.

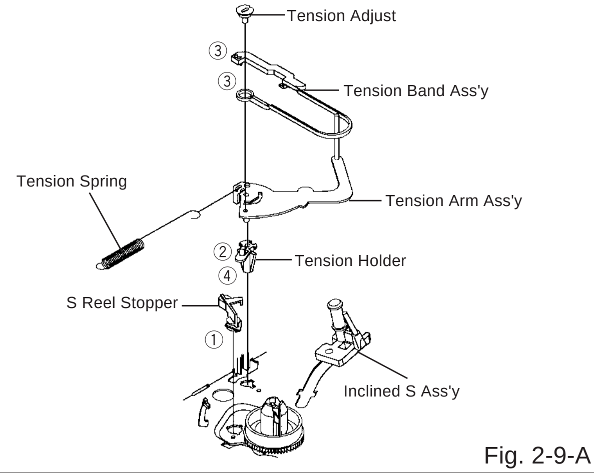


Fig. 2-9-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. **(Refer to Fig. 2-9-B)**

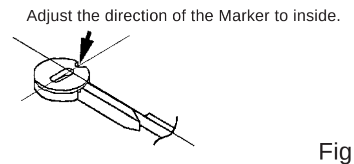


Fig. 2-9-B

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

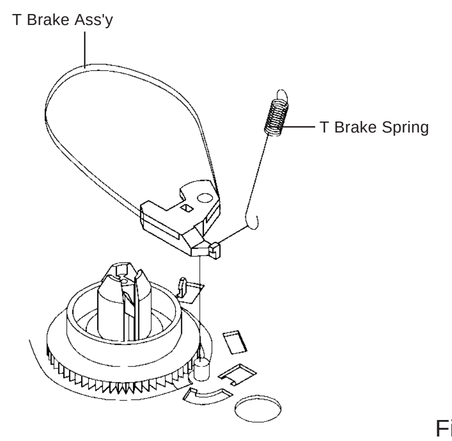


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL ASS'Y (Refer to Fig. 2-11)

1. Remove the Idler Ass'y.
2. Remove the S Reel and T Reel Ass'y.
3. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel, T Reel Ass'y and Idler Ass'y.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel Ass'y. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (KYODO OIL Slidas #150). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

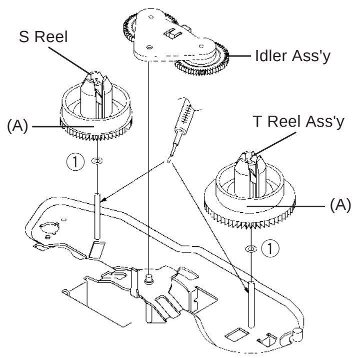
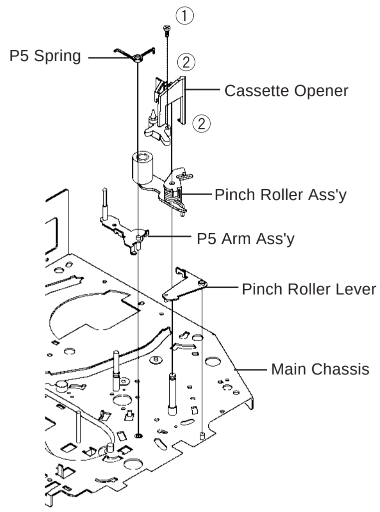


Fig. 2-11

2-12: PINCH ROLLER ASS'Y/P5 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Ass'y, Pinch Roller Lever and P5 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller Ass'y. (Use gloves.)
2. When you install the Pinch Roller Ass'y, install as shown in the circle. **(Refer to Fig. 2-12-B)**

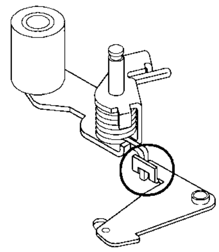


Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

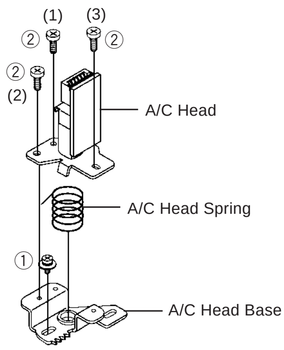


Fig. 2-13-A

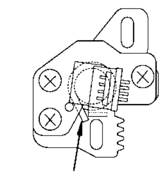
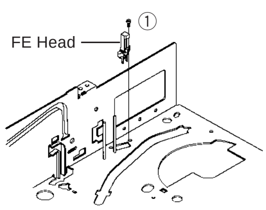


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.

Fig. 2-14

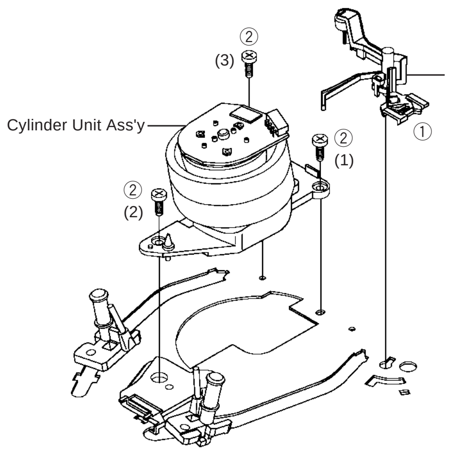
DISASSEMBLY INSTRUCTIONS

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

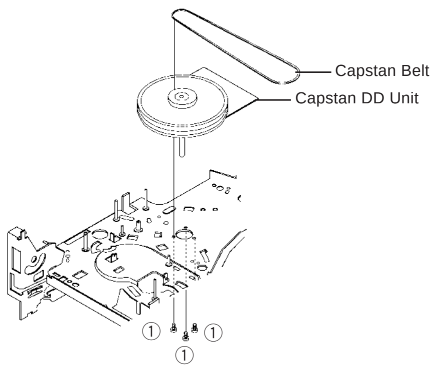


• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, Link Lever Spacer and P5 Cam.
3. Remove the Polyslider Washer ②, then remove the Pinch Roller Cam.
4. Remove the Polyslider Washer ③, then remove the Joint Gear.

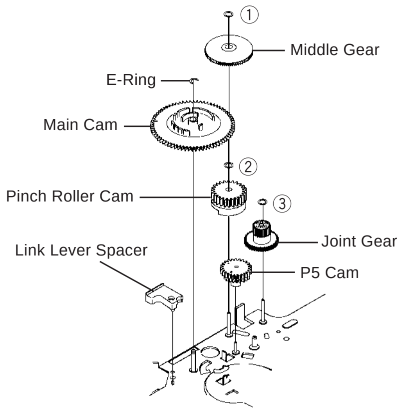


Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

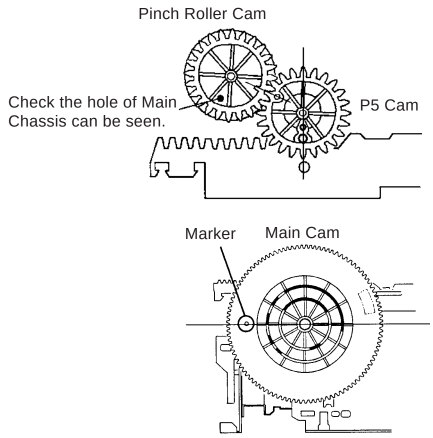


Fig. 2-17-B

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring, Ring Clutch, Gear Clutch and Polyslider Washer ②.

NOTE

When you install the Clutch Ass'y, oil the shaft (KYODO OIL Slidas #150).

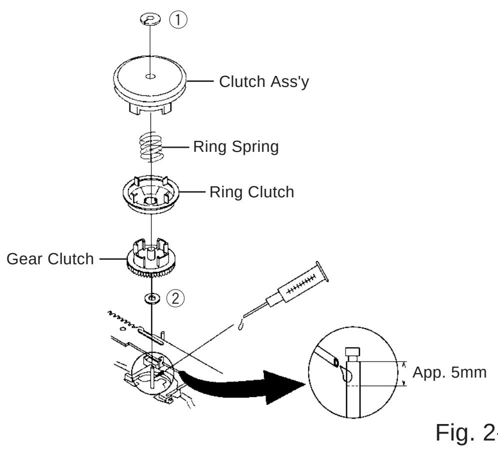


Fig. 2-18

DISASSEMBLY INSTRUCTIONS

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Arm Ass'y.
4. Remove the Main Rod.
5. Remove the Tension Lever.
6. Unlock the 2 supports ② and remove the Clutch Lever.
7. Remove the screw ③ and washer ④.
8. Remove the LED Reflecter.
9. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
10. Remove the Loading Gear S and Loading Gear T.
11. Remove the Loading Gear Spring.

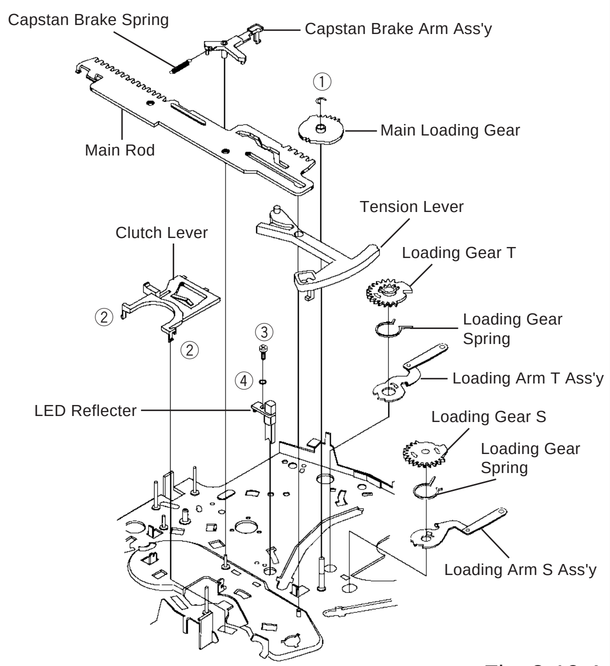


Fig. 2-19-A

NOTE

When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

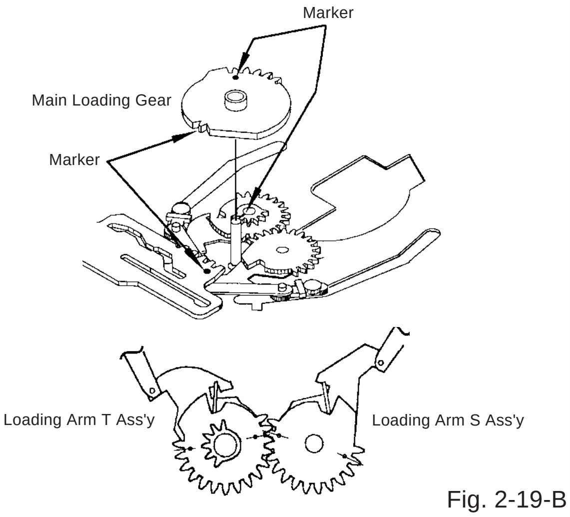


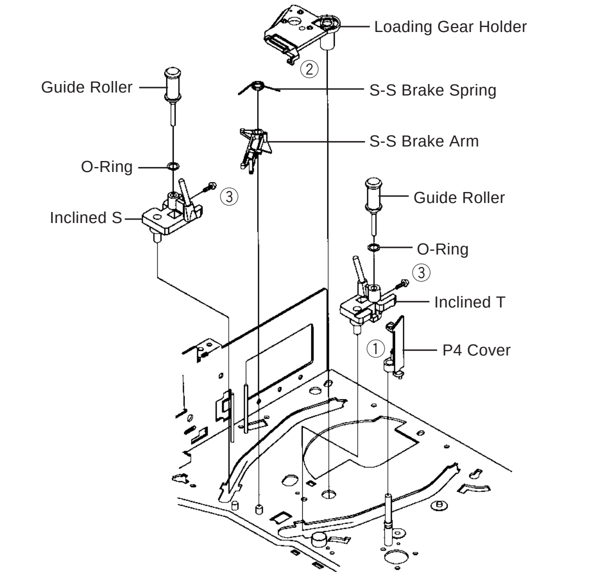
Fig. 2-19-B

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the S-S Brake Spring.
3. Unlock the support ② and remove the Loading Gear Holder.
4. Remove the S-S Brake Arm.
5. Remove the Inclined S.
6. Remove the Inclined T.
7. Remove the 2 screws ③, then remove the Guide Roller and O-Ring.

NOTE

Do not touch the roller of Guide Roller.



• Screw Torque: 0.7 ± 0.2kgf•cm

Fig. 2-20

KEY TO ABBREVIATIONS

A	A/C	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	BGP	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	C	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	DATA (SY-CE)	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	E	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	F	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	GEN	:	Generator
	GND	:	Ground
H	H.P.F	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	IC	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	KIL	:	Killer
L	L	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	M	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	NC	:	Non Connection
	NR	:	Noise Reduction
O	OSC	:	Oscillator
	OPE	:	Operation
P	PB	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	R	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	S. CLK	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

Method	Operations
Press both PLAY button and CH UP button on the set for more than 2 seconds.	Initialization of the factory. NOTE: Do not use this for the normal servicing.
Press both FF button and CH UP button on the set for more than 2 seconds.	PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Press both STOP button and CH UP button on the set for more than 2 seconds during PLAY.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Press both CH UP button and CH DOWN button on the set for more than 2 seconds.	CH Preset and Clock Setting are automatically set. (AUTO SET UP)
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

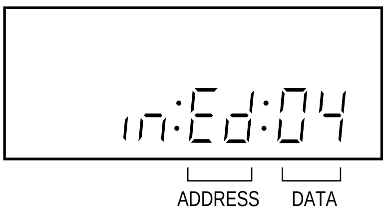
Parts Name \ Time	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

PLAY/REC total hours can be checked on the FIP.
Total hours are displayed in 16 system of notation.

1. Press both FF button and CH UP button on the set for more than 2 seconds.
2. Adjust the ADDRESS to "FD" by SET +/- button and read the DATA.
   (This DATA becomes the thousands digit and hundreds digit value of the following formula.)
3. Adjust the ADDRESS to "FE" by SET +/- button and read the DATA.
   (This DATA becomes the tens digit and ones digit value of the following formula.)
4. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

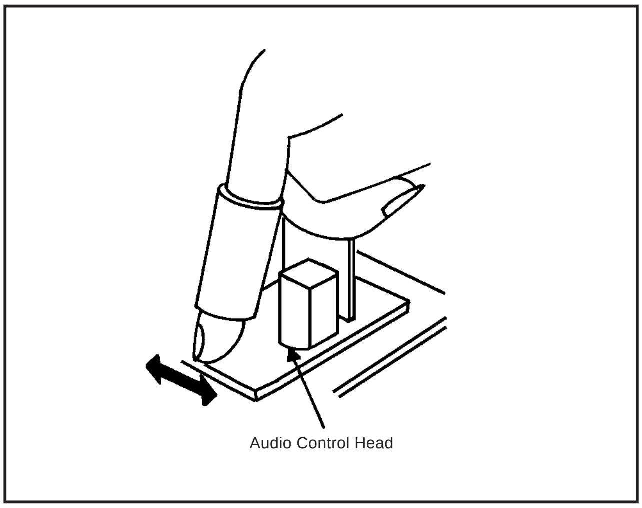
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

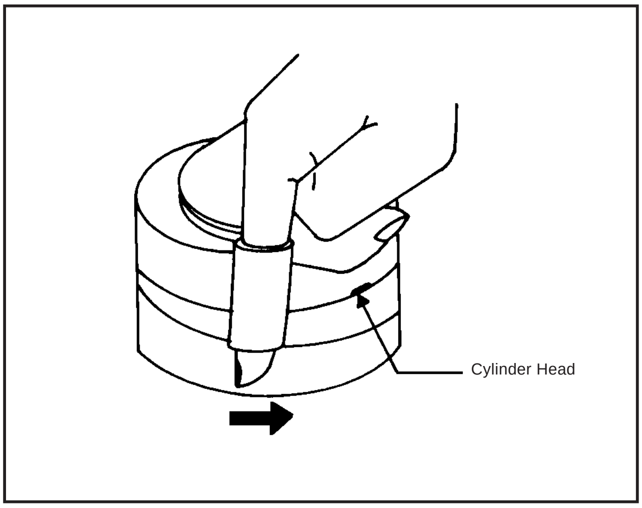
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

1. Turn on the POWER and press both FF key and CH UP key on the set for more than 2 seconds.
2. ADDRESS and DATA should appear as FIG 1.

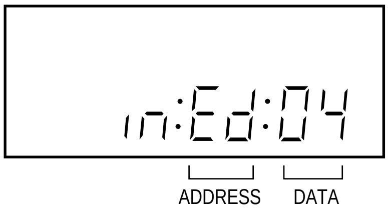


Fig. 1

3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

HV-GX900K

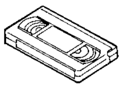
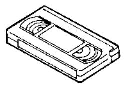
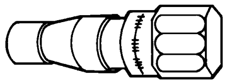
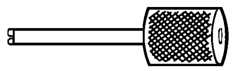
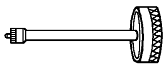
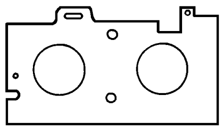
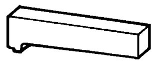
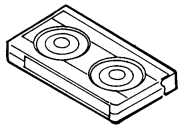
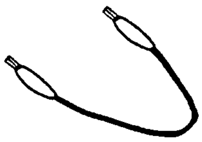
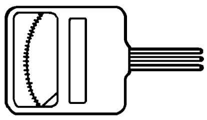
ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
CC	F5	D6	80	E0	35	EA	35	F4	00
CD	44	D7	00	E1	5E	EB	5F	F5	00
CE	21	D8	31	E2	0A	EC	0A	F6	00
CF	00	D9	9F	E3	F0	ED	F0	F7	00
D0	C6	DA	02	E4	05	EE	05	F8	00
D1	45	DB	0A	E5	F3	EF	F3	F9	00
D2	00	DC	42	E6	6C	F0	00	FA	00
D3	A0	DD	35	E7	2B	F1	00	FB	00
D4	00	DE	A3	E8	21	F2	00	FC	99
D5	00	DF	89	E9	15	F3	00		

HV-GX950K

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
CC	F5	D6	80	E0	35	EA	35	F4	00
CD	44	D7	00	E1	5E	EB	5F	F5	00
CE	25	D8	31	E2	0A	EC	0A	F6	00
CF	88	D9	9F	E3	F0	ED	F0	F7	00
D0	C2	DA	02	E4	05	EE	05	F8	00
D1	45	DB	0A	E5	F3	EF	F3	F9	00
D2	00	DC	42	E6	6C	F0	00	FA	04
D3	A0	DD	35	E7	2B	F1	00	FB	00
D4	00	DE	A3	E8	21	F2	00	FC	99
D5	00	DF	89	E9	15	F3	00		

Table 1

SERVICING FIXTURES AND TOOLS

(For 1 speed model) VHS Alignment Tape JG001E (TTV-P2) JG001F (TTV-P1L) JG001U (VP$_1$ S-X6^3) 	**(For 2 speed model)** VHS Alignment Tape JG001C (TTV-P2) JG001D (TTV-P1L) JG001V (VP$_2$ S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable Parts No. SJ-G15-400-000 	Tentelometer 		

Part No.	Remarks
JG001E	Stair Steps, 6KHz **(For 1 speed model)**
JG001F	Color Bar, 1KHz **(For 1 speed model)**
JG001U	X Value Adjustment **(For 1 speed model)**
JG001C	Stair Steps, 7KHz **(For 2 speed model)**
JG001D	Color Bar, 1KHz **(For 2 speed model)**
JG001V	X Value Adjustment **(For 2 speed model)**
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG005	Guide Roller Adjustment
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
JG154	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Short circuit between **TP1001** and **TP1002** with the cable JG154.
   (Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)
   The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

VCR TEST TAPE INTERCHANGEABILITY TABLE

There are two types of the new alignment tape CH-1B (for NTSC) and CH-2 (for PAL). On each tape four signals (1) - (4) are recorded for the times and in the order shown below.

(1) : 8min. ---> (2) : 2min. ---> (3) : 5min. ---> (4) : 5min.

The TTV-MP1 (for M-PAL), TTV-MS1 (for MESECAM) and TTV-S1 (for SECAM) alignment tapes have the same contents as the previous tapes.

Method	Now in use TYPE		New TYPE		Application
	Model	Contents*1	Model	Contents*1	
NTSC	TTV-N1	NTSC, Color, 1kHz, SP	CH-1B(2)	NTSC, Stairsteps, 1kHz, SP	PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-N1E	NTSC, Color, 1kHz, EP	CH-1B(4) *2	NTSC, Color, 1kHz, EP	Switching position ADJ.
	TTV-N2	NTSC, Stairsteps, 7kHz, SP	CH-1B(1)	NTSC, Stairsteps, 7kHz, SP	Head ACE Azimuth ADJ.
	TTV-N12 (SCV-1998)	NTSC, Color, 1kHz, SP	CH-1B(4)	NTSC, Color, 1kHz, EP	FM envelope ADJ. X-Value ADJ.
	TTV-N7A	NTSC, Stairsteps, 1kHz, SP, HiFi 400Hz	CH-1B(3)	NTSC, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
PAL	TTV-P1	PAL, Color, 1kHz, SP	CH-2(2) *3	PAL, Stairsteps, 1kHz, SP	Switching position ADJ. PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-P1L	PAL, Color, 1kHz, LP	CH-2(4)	PAL, Color, 1kHz, LP	Switching position. (LP Model) FM Envelope ADJ. (LP Model) X-Value ADJ. (LP Model)
	TTV-P2	PAL, Stairsteps, 6kHz, SP	CH-2(1)	PAL, Stairsteps, 6kHz, SP	Head ACE Azimuth ADJ. FM Envelope ADJ. (SP Model) X-Value ADJ. (SP Model)
	TTV-P7	PAL, Stairsteps, 1kHZ, SP, HiFi, 1kHz	CH-2(3)	PAL, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
	TTV-P16	PAL, Color, 400Hz, SP, HiFi 1kHz	No Changed.		FM Filter ADJ.

*1. Described in the order of color format. Video signal. Linear audio. Tape speed and Hi-Fi audio.
*2. Use CH-1B (1) - (3) with models used exclusively in the SP mode.
*3. Use CH-2 (3) and (4) when it is necessary to observe the chroma signal.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **TP1002**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig **(JG024A)** , and is higher than "C". If it is not enough height, adjust to 10(+0.2, -0) mm with the height adjustment washer.
4. Adjust the other reel in the same way.

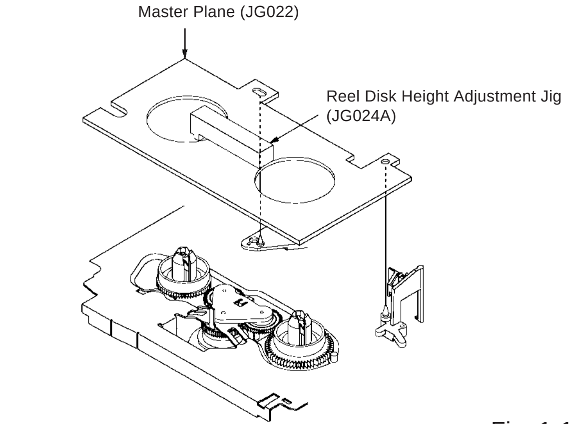


Fig. 1-1-A

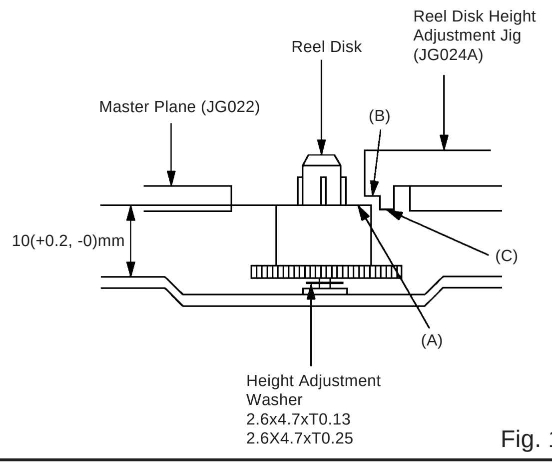


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the length from the edge of the Tension Arm to the standard line of the Main Chassis is 0.5 ± 0.25mm.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

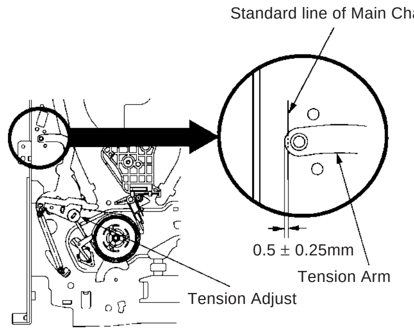


Fig. 1-2-A

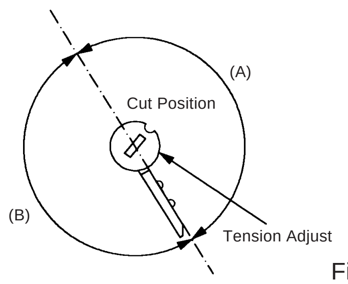


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(JG100A)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 70~130gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

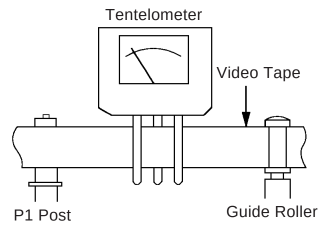


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Rewind mode. **(Refer to Fig.1-4)**
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 70~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel Ass'y.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 35~60gf•cm.

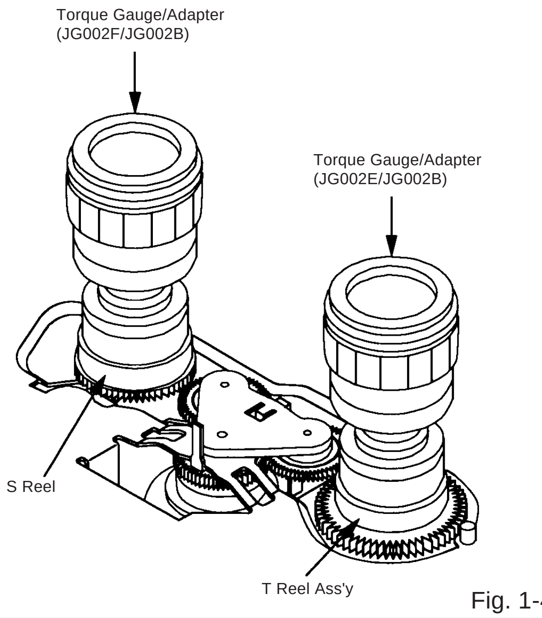


Fig. 1-4

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4002 (Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
3. Press and hold the TRACKING-AUTO button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head.
(Refer to item 2-2)

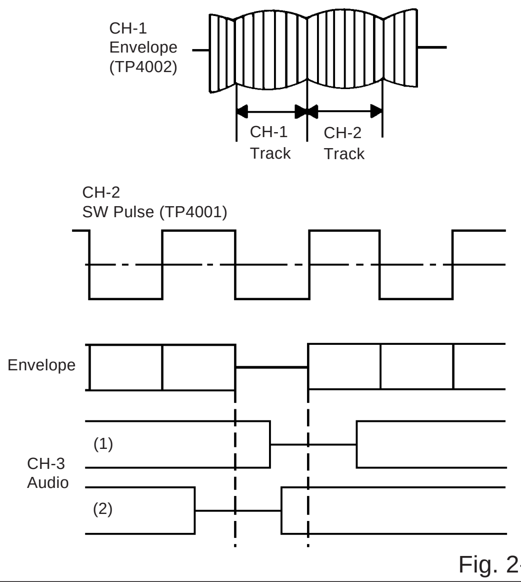


Fig. 2-1-A

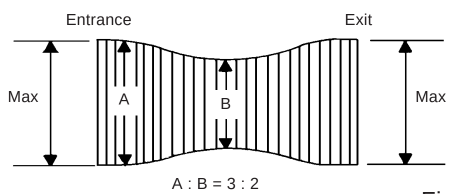


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

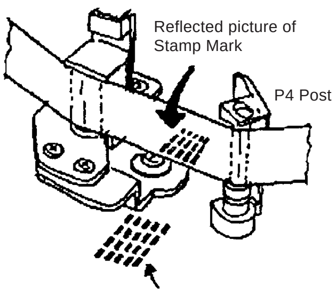


Fig. 2-2-A

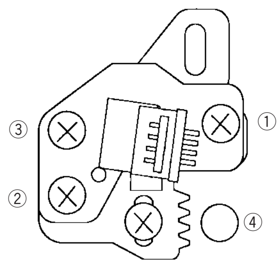


Fig. 2-2-B

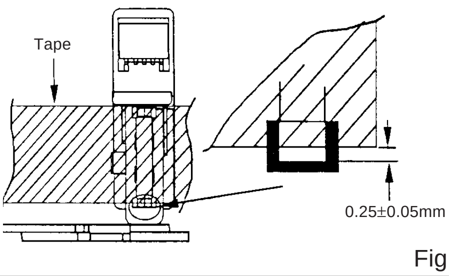


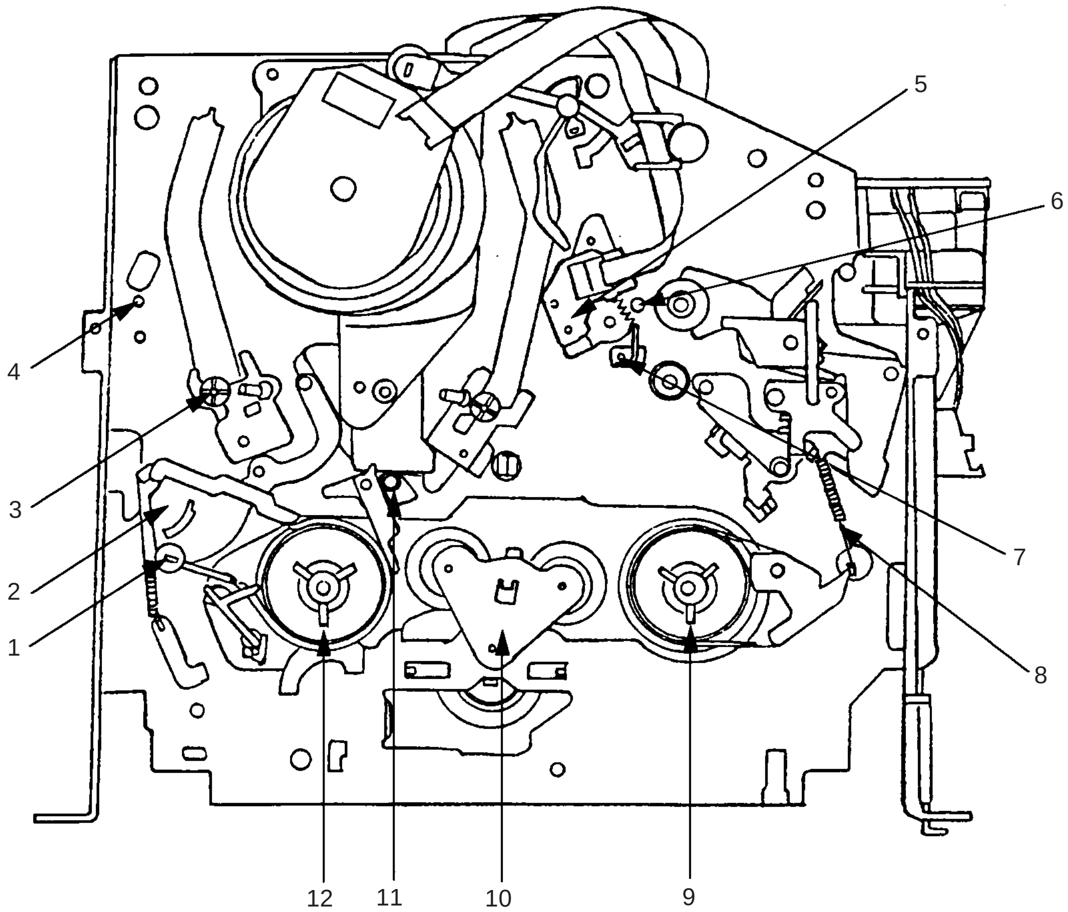
Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP4002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001U or JG001V)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the TRACKING-AUTO button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust	7. P4 Post
2. Tension Arm	8. T Brake Spring
3. Guide Roller	9. T Reel Ass'y
4. P1 Post	10. Idler Ass'y
5. Audio/Control Head	11. S-S Brake Spring
6. X value adjustment driver hole	12. S Reel

ELECTRICAL ADJUSTMENTS

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistors, use only specified silicon grease **(YG6260M)**.
(To prevent the damage to IC's and transistors.)

1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape **(JG001C)**

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **pin 19 of J4501**.
2. Playback the alignment tape. **(JG001C)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button and STOP button on the set for more than 2 seconds. If the indicator ATR disappear's, the adjustment is finished. **(Refer to Fig. 1-1-A, B)**

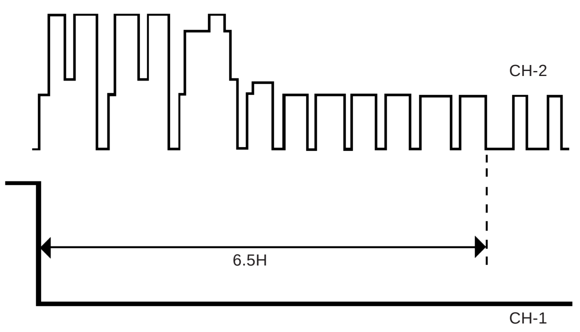


Fig. 1-1-A

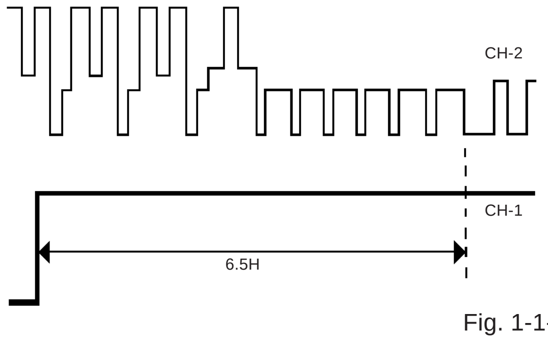


Fig. 1-1-B

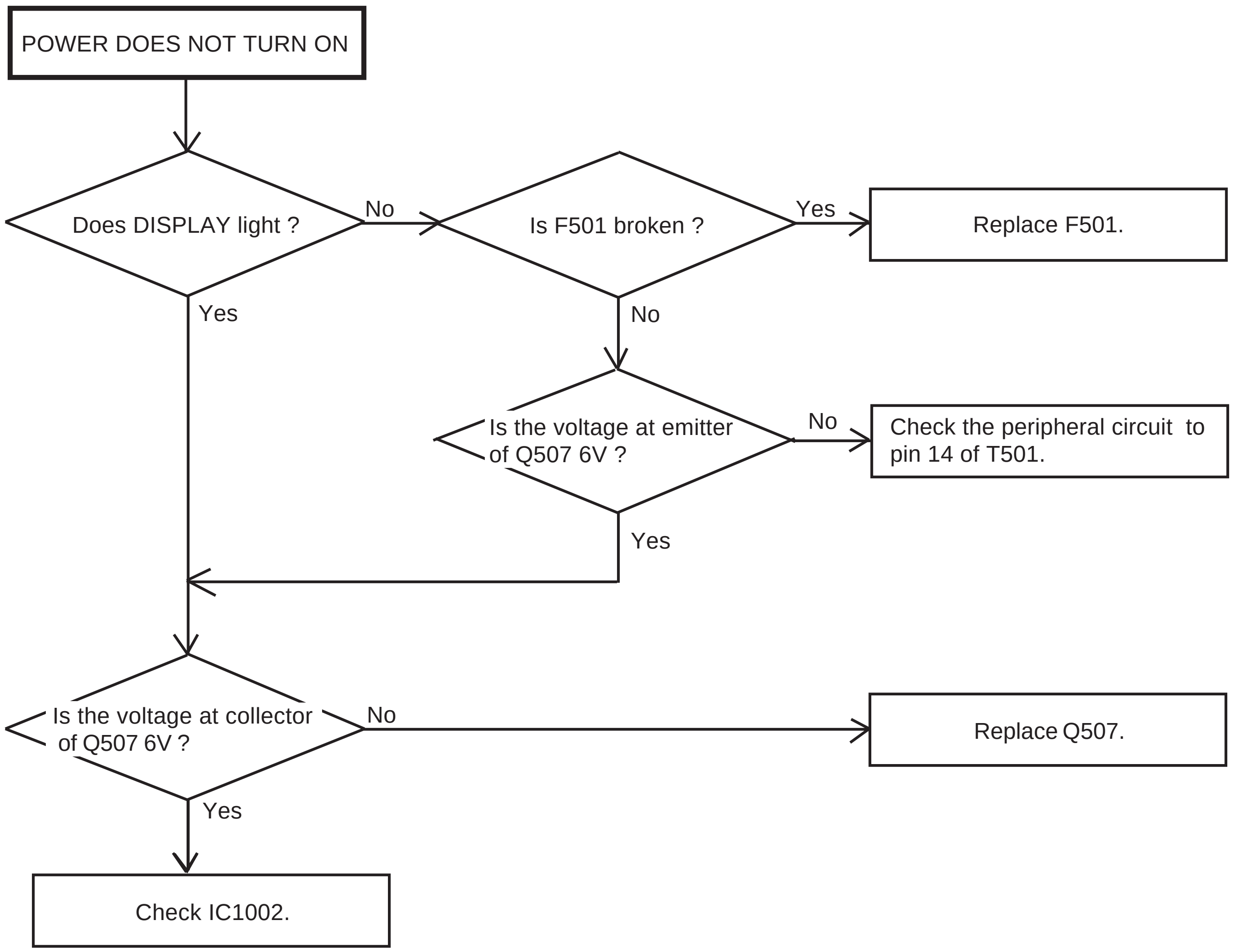
ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE

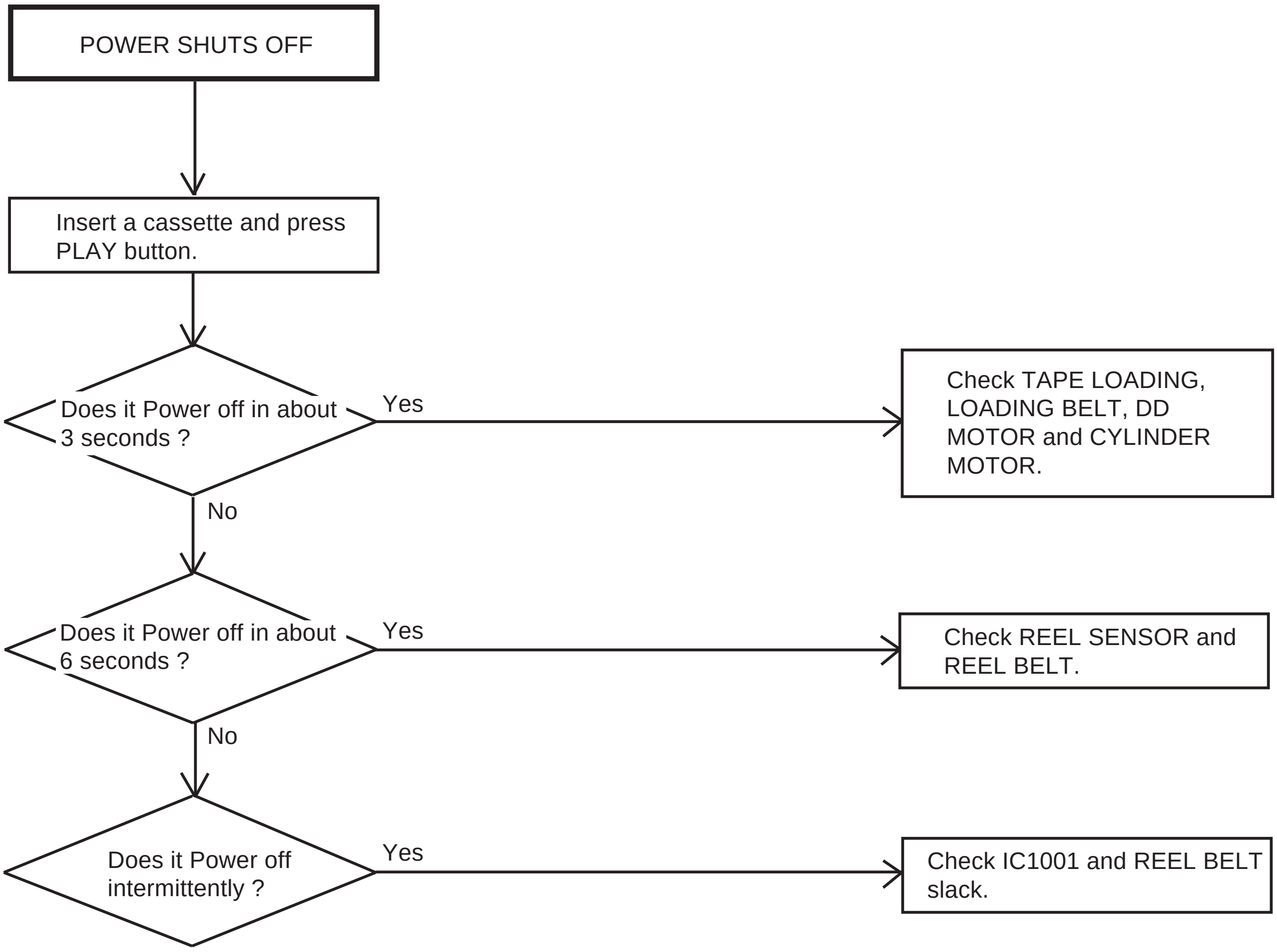


SYSCON PCB

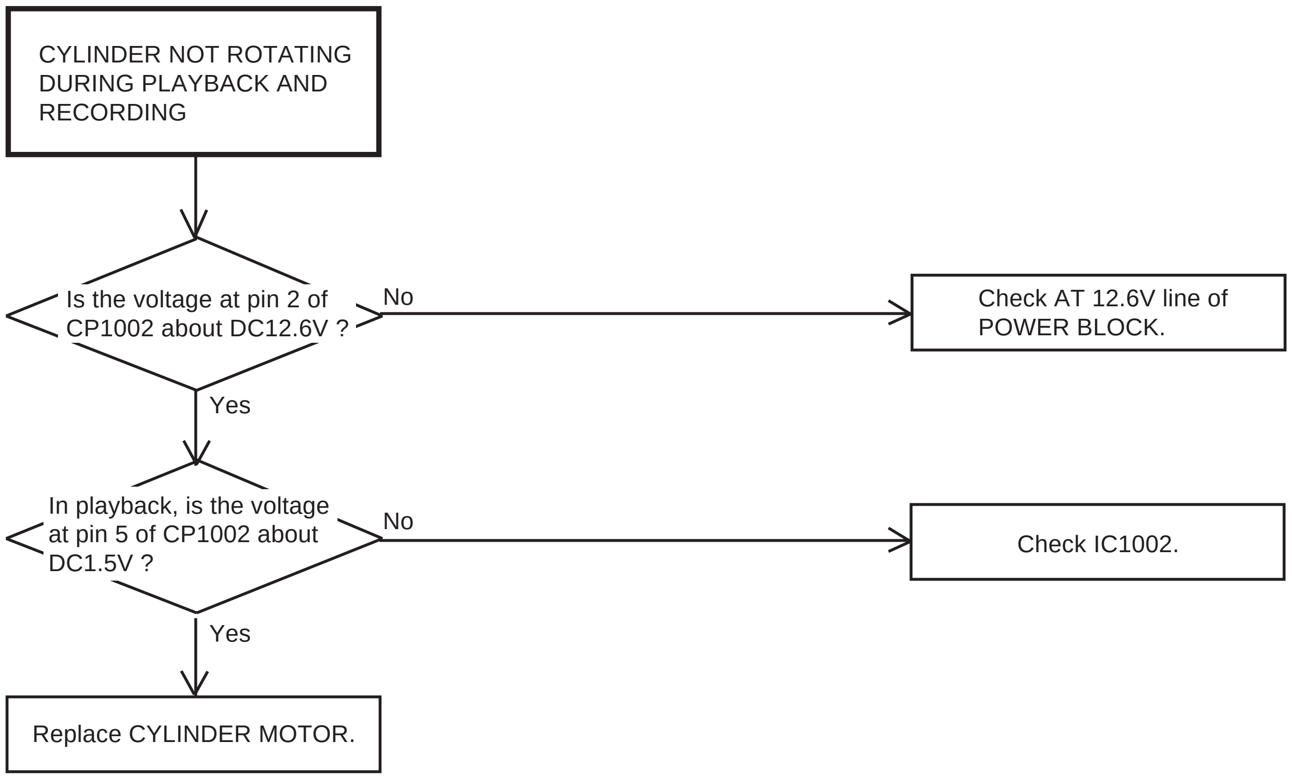
TROUBLESHOOTING GUIDE



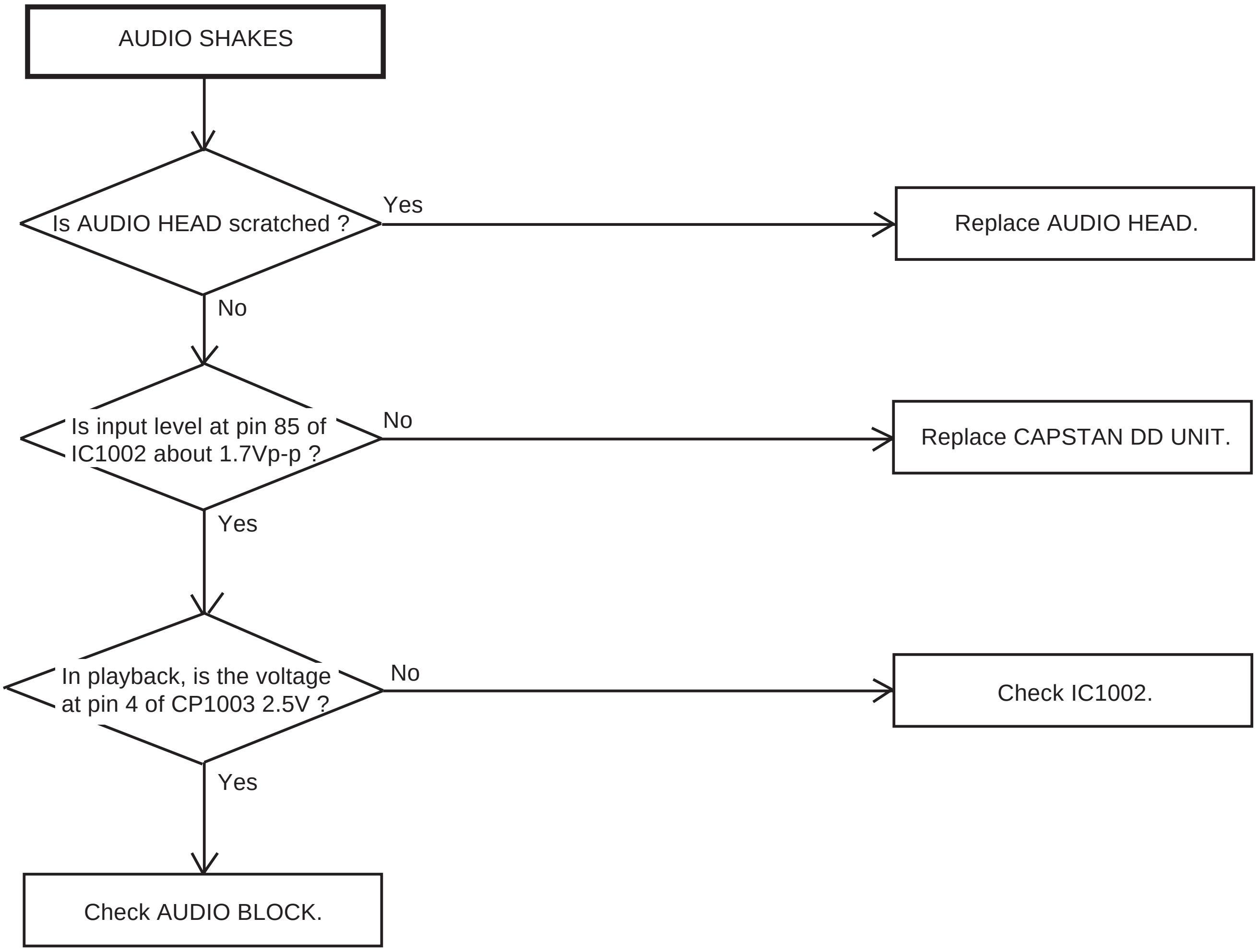
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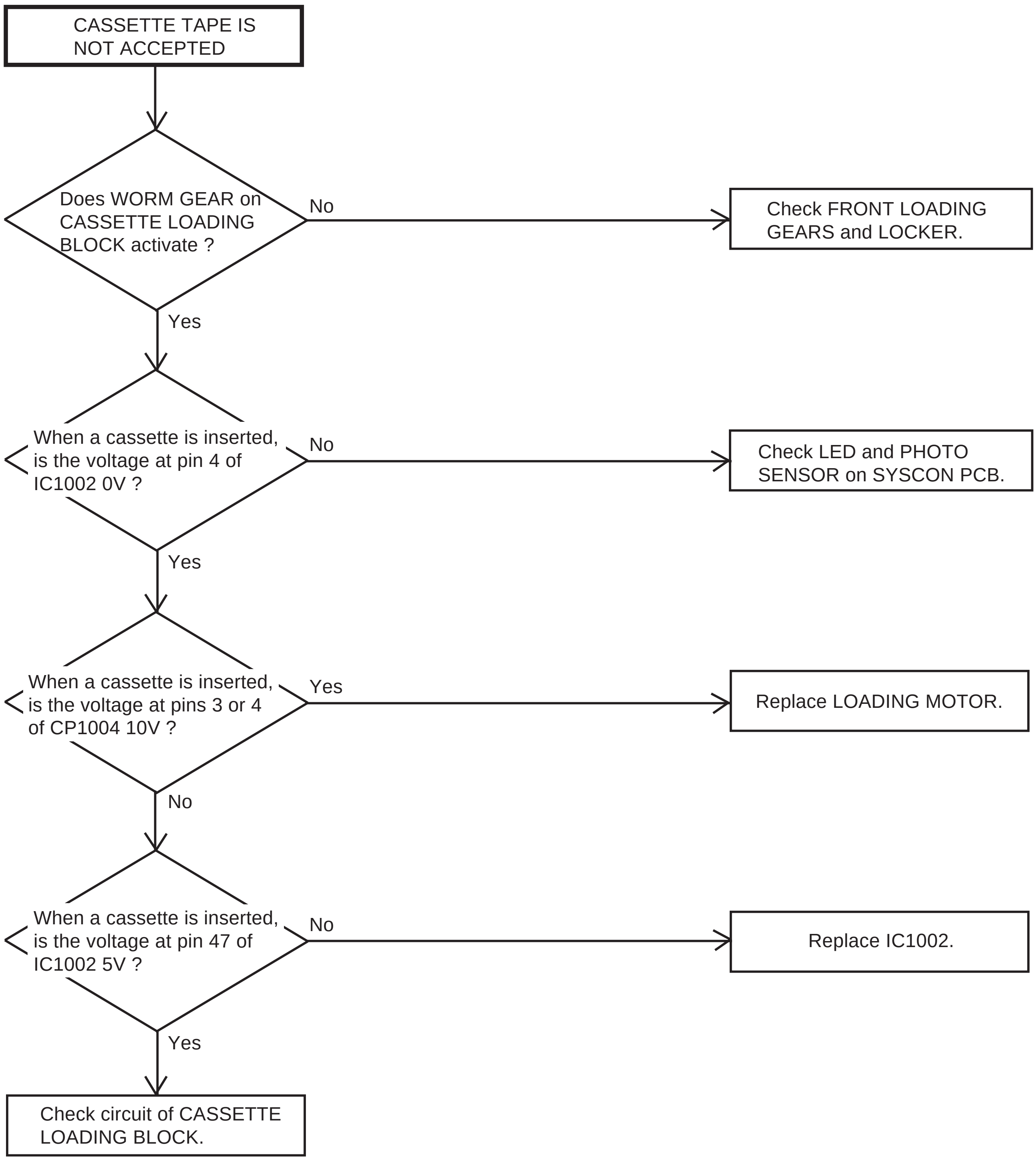
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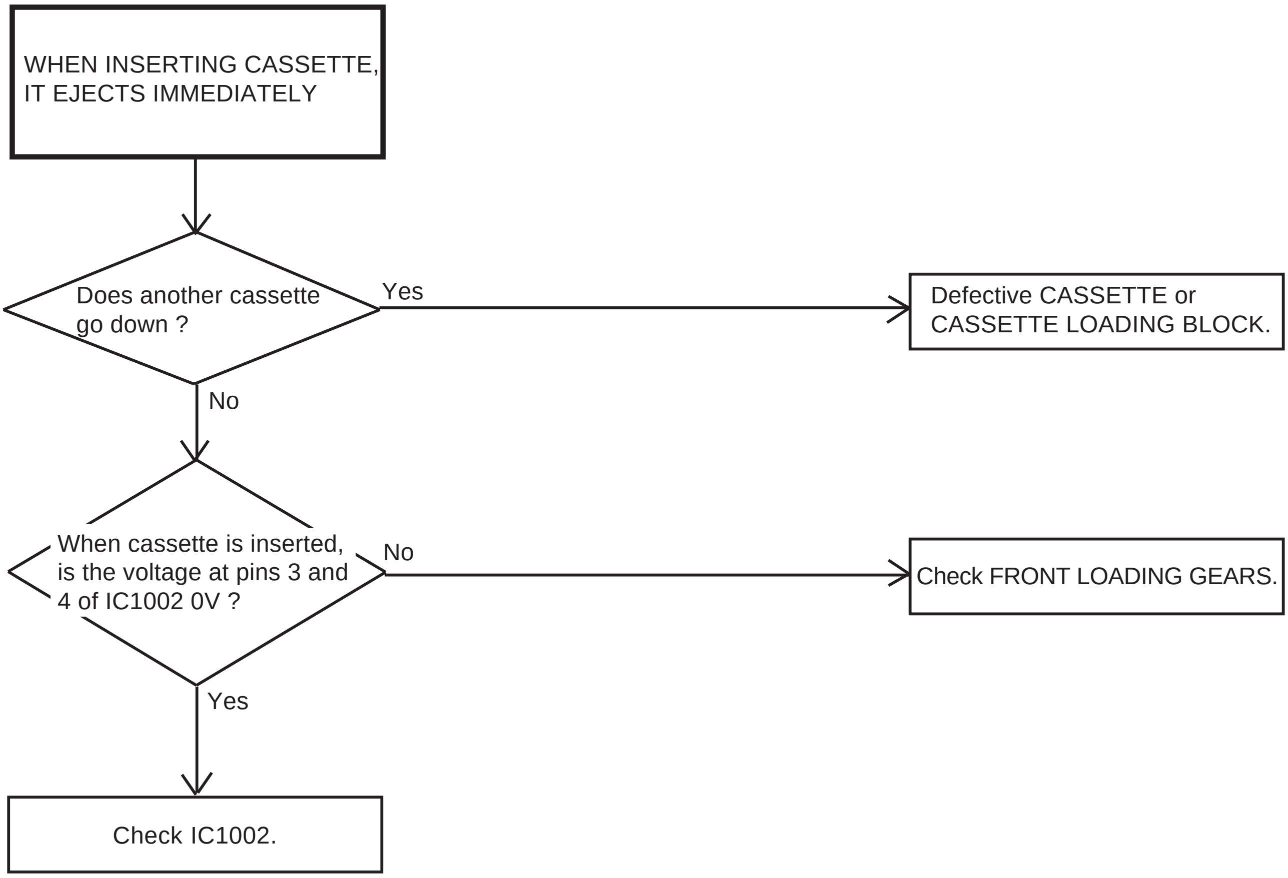
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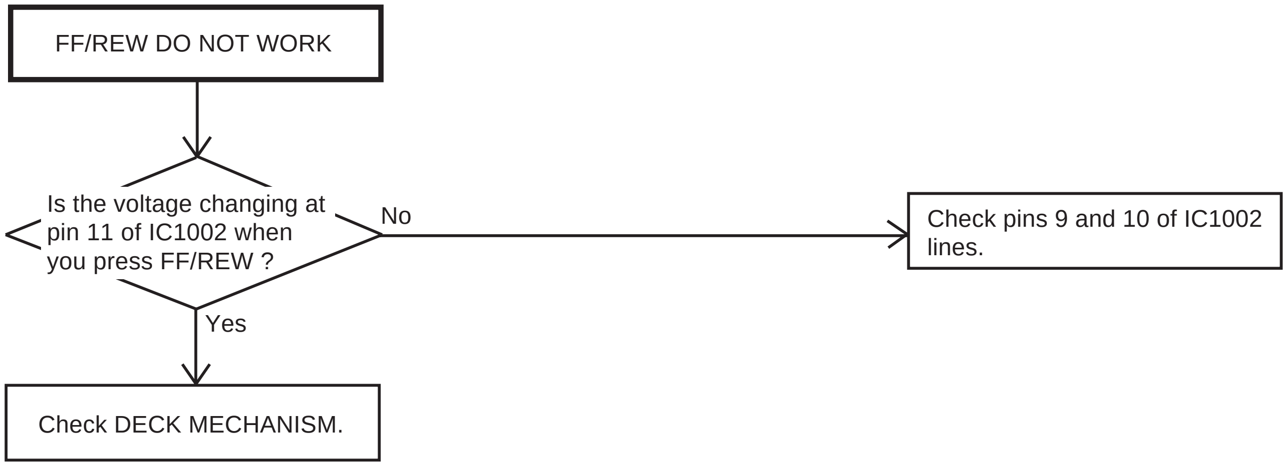
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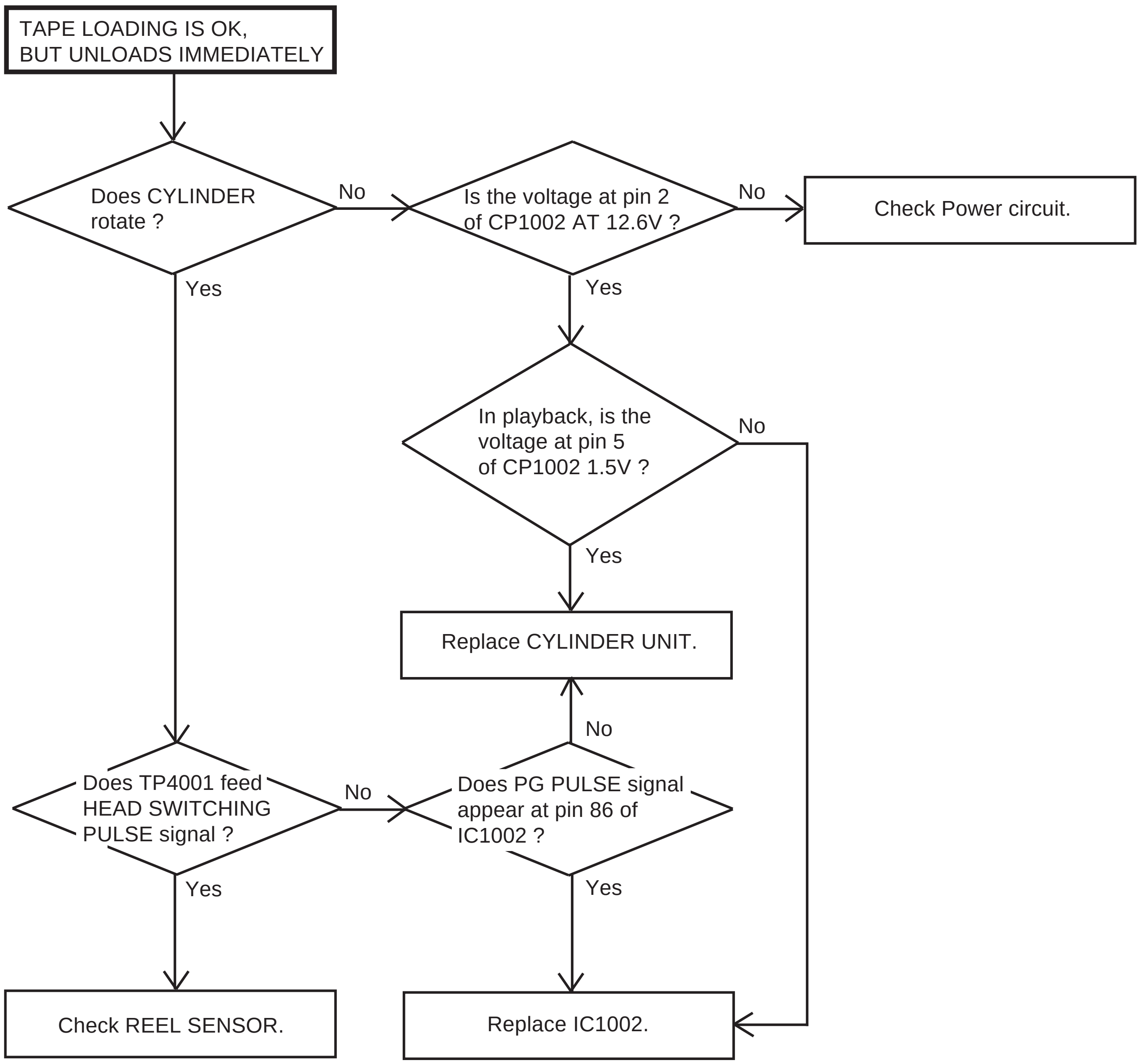
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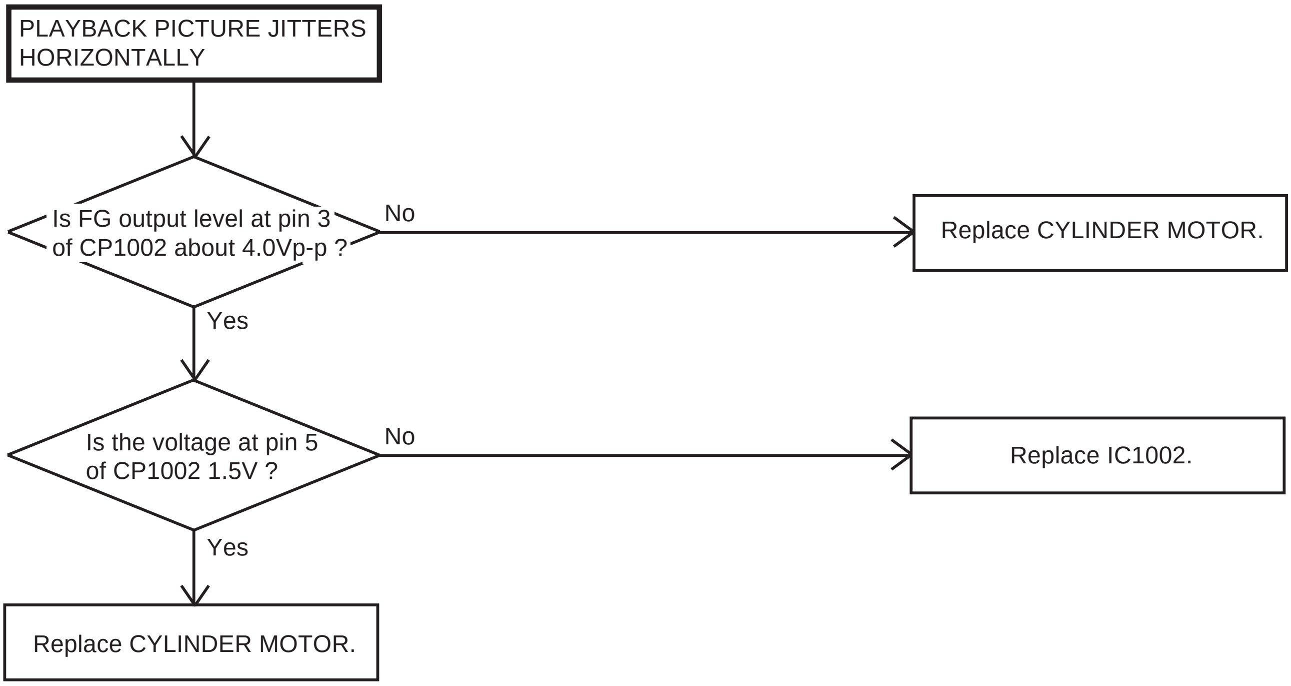
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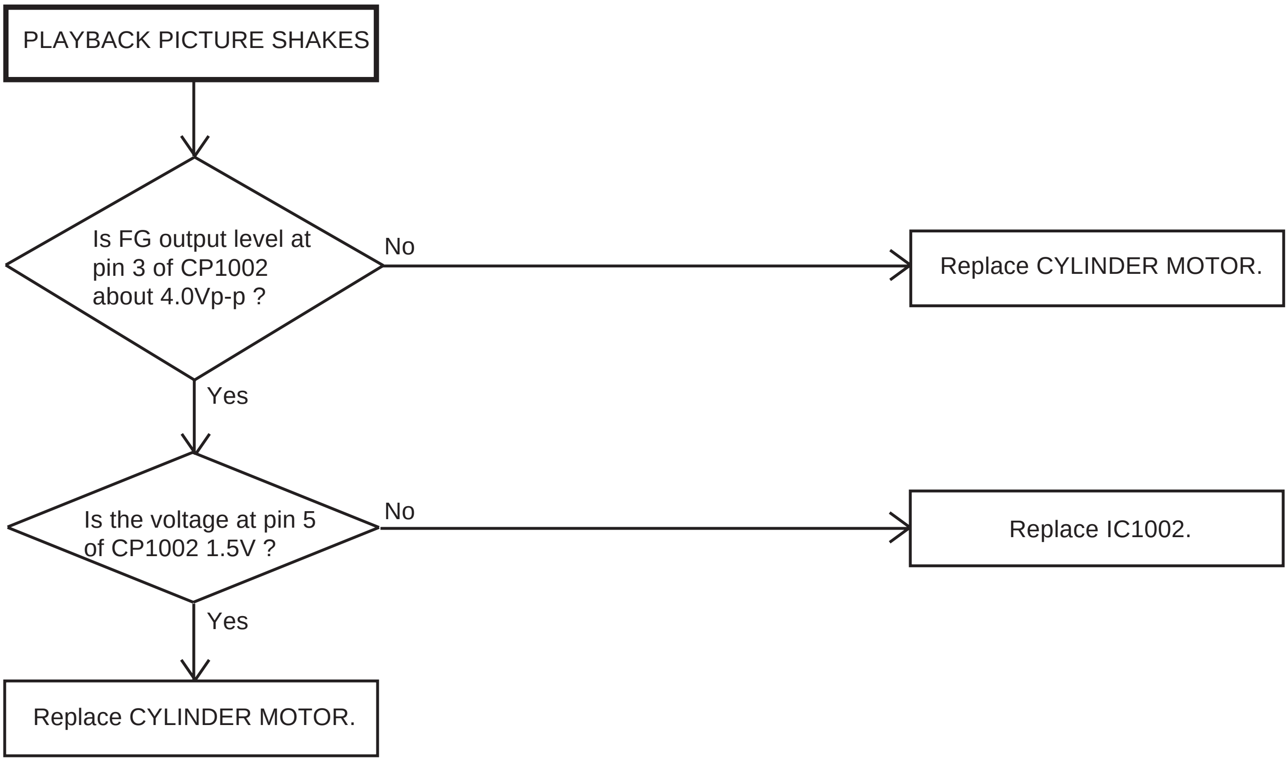


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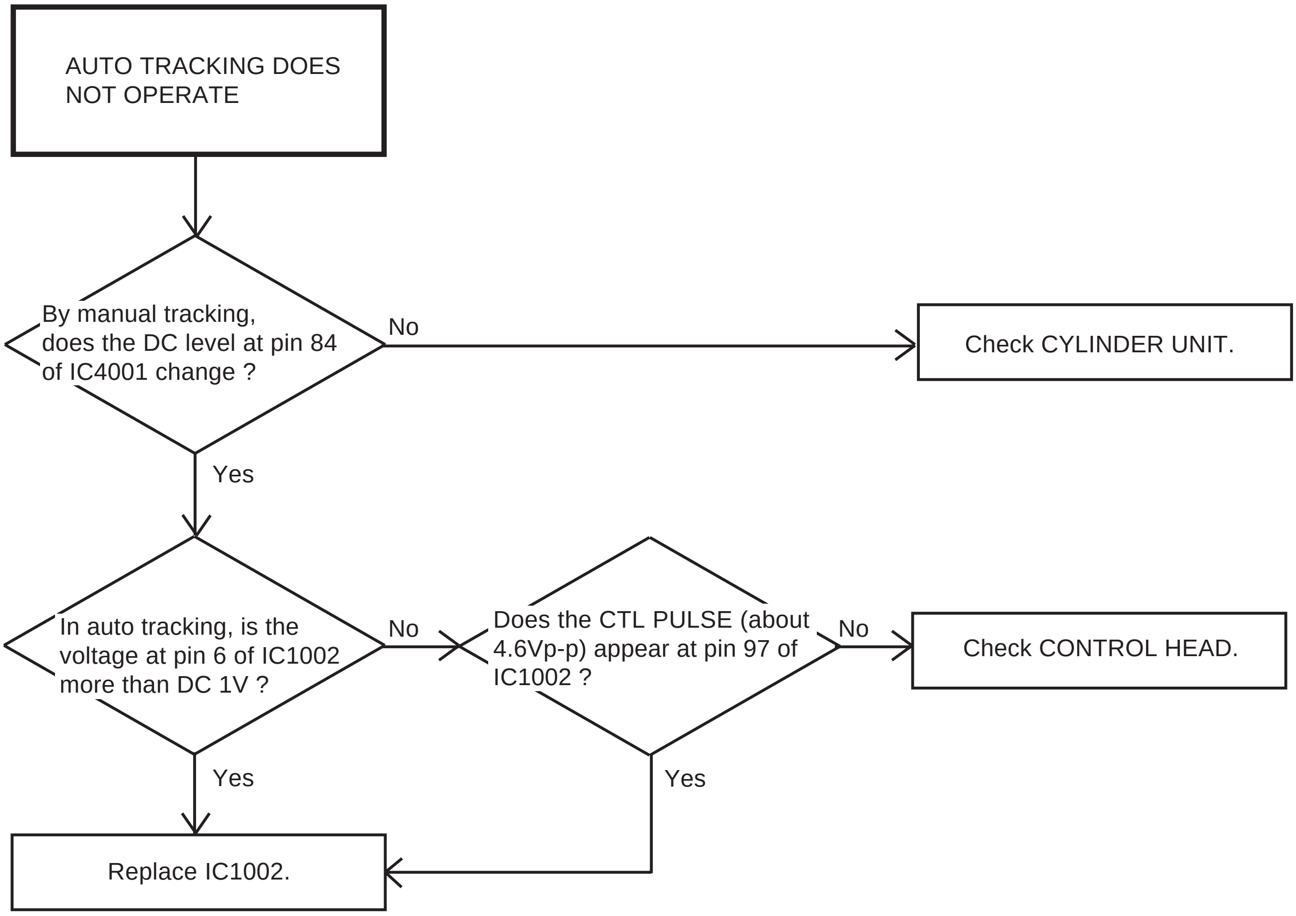


TROUBLESHOOTING GUIDE

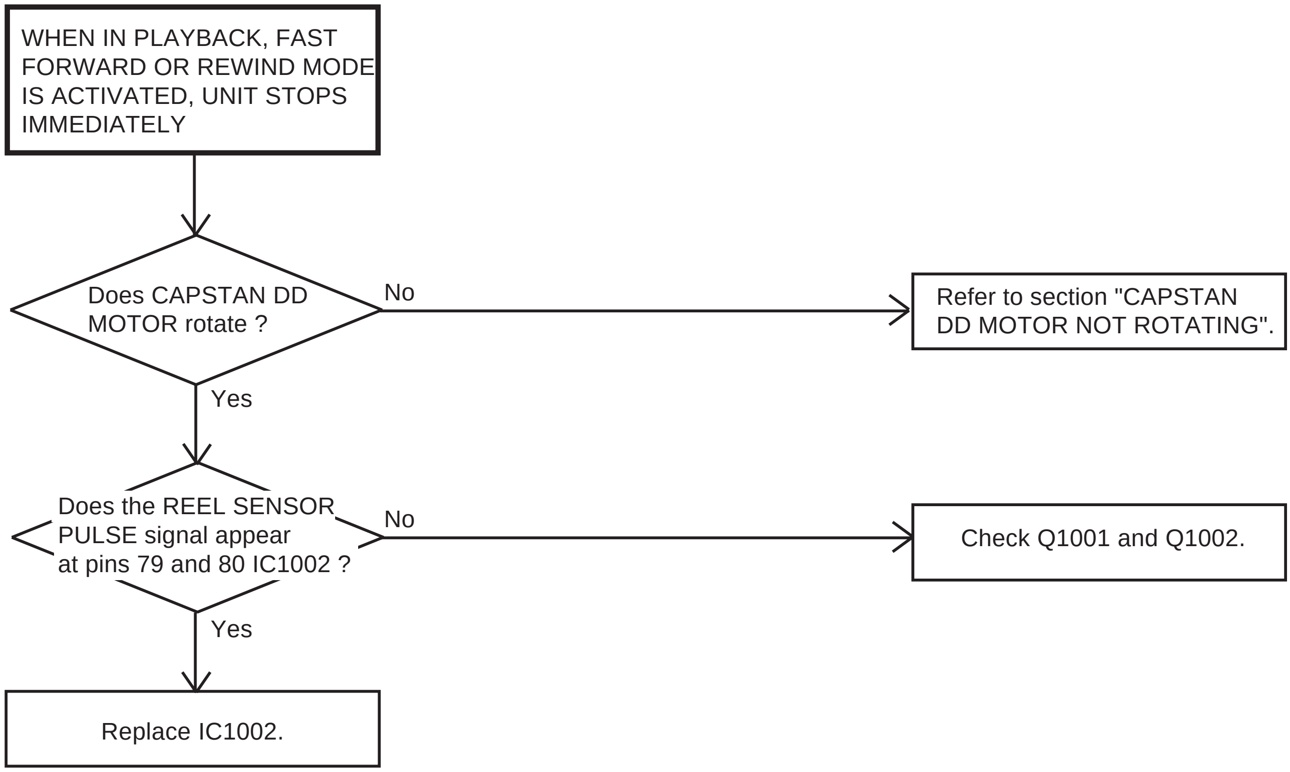




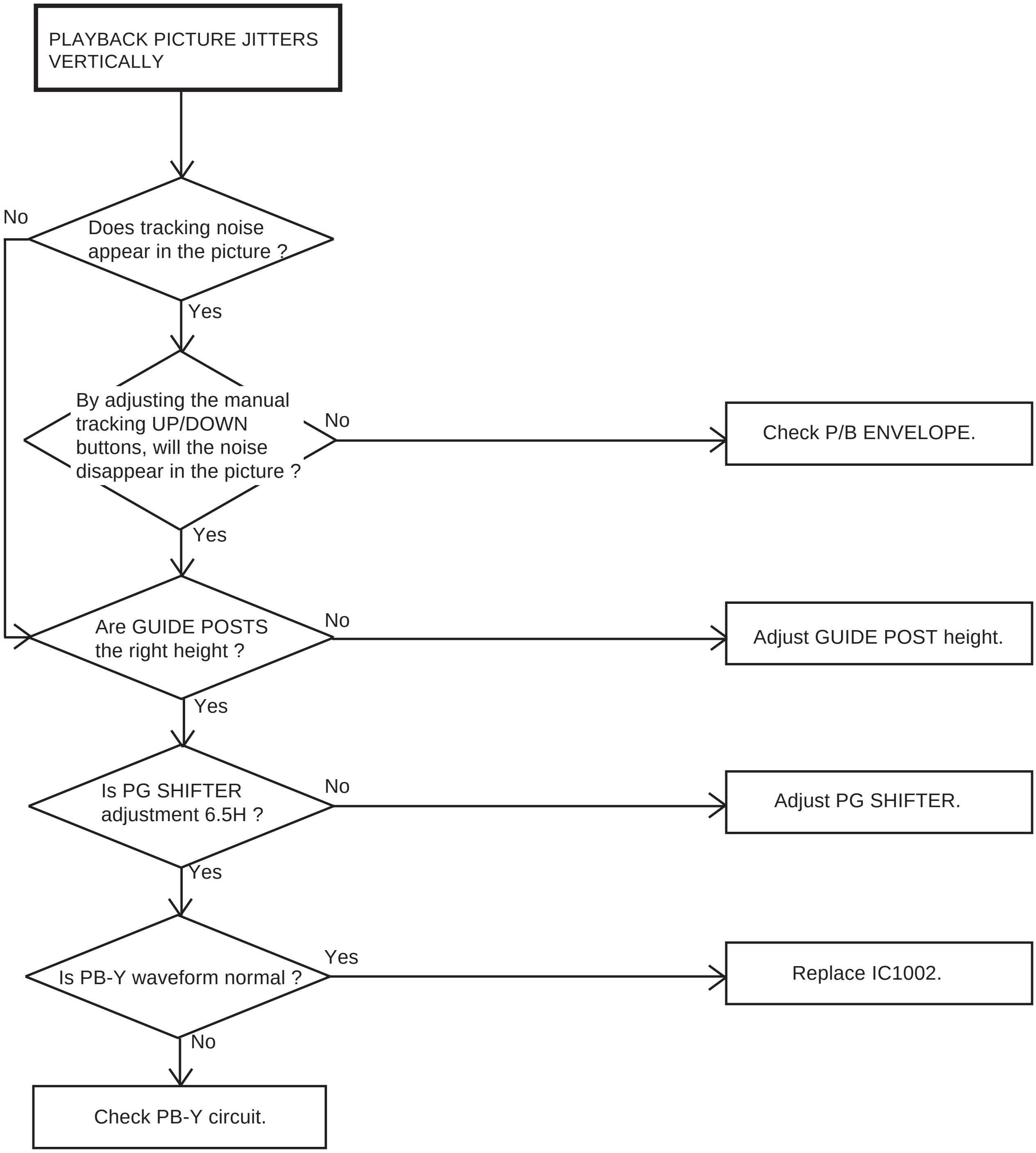
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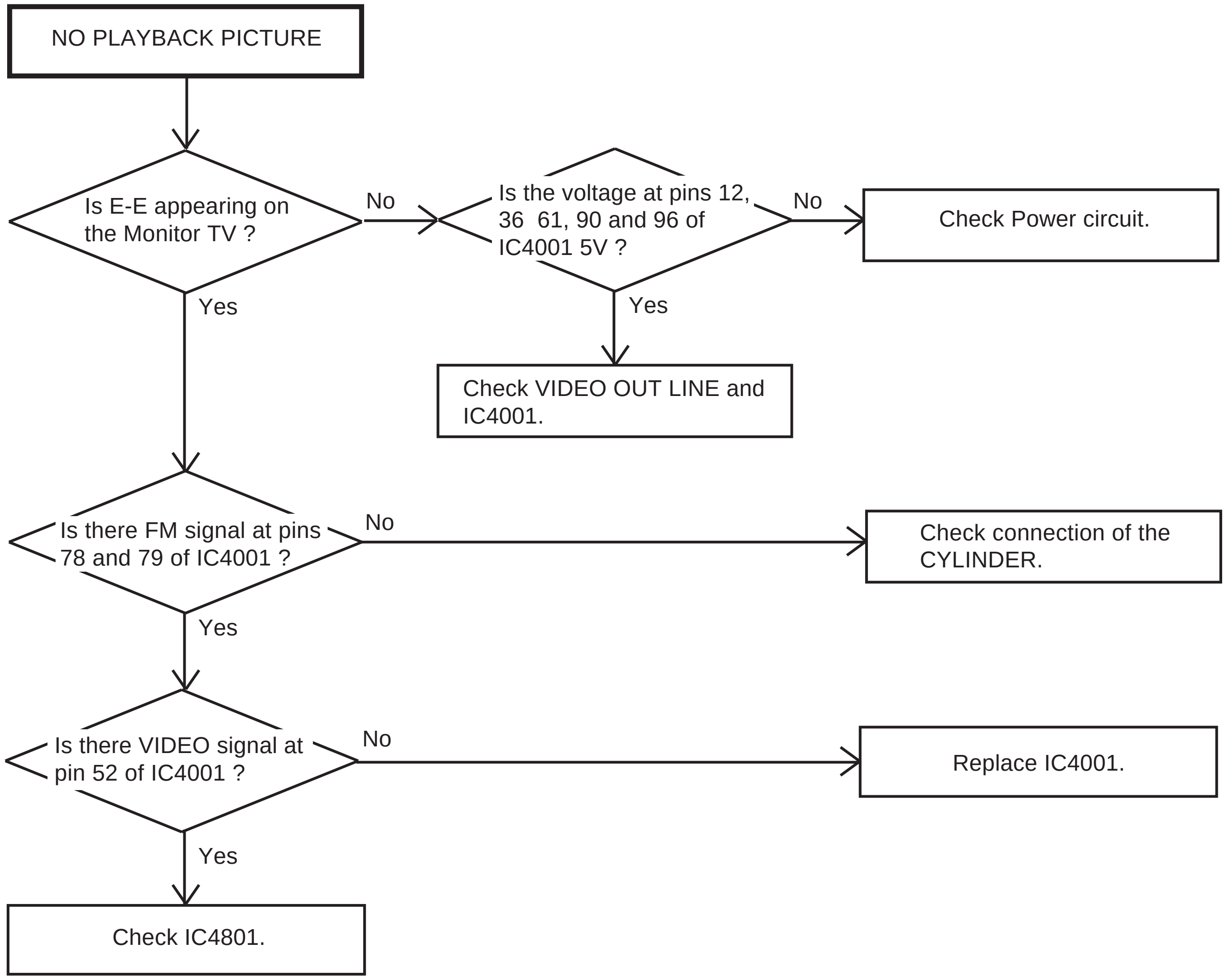
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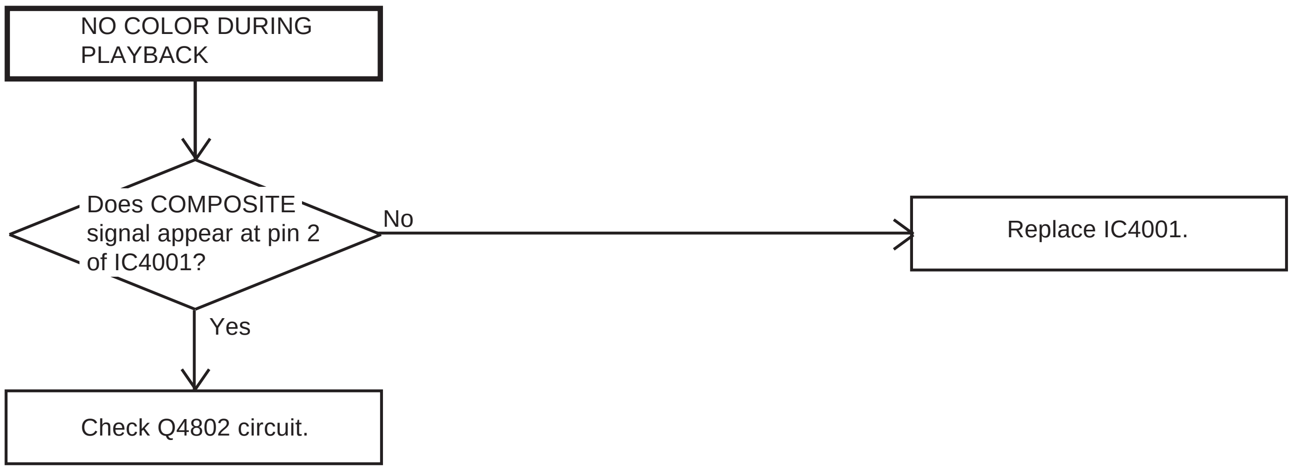
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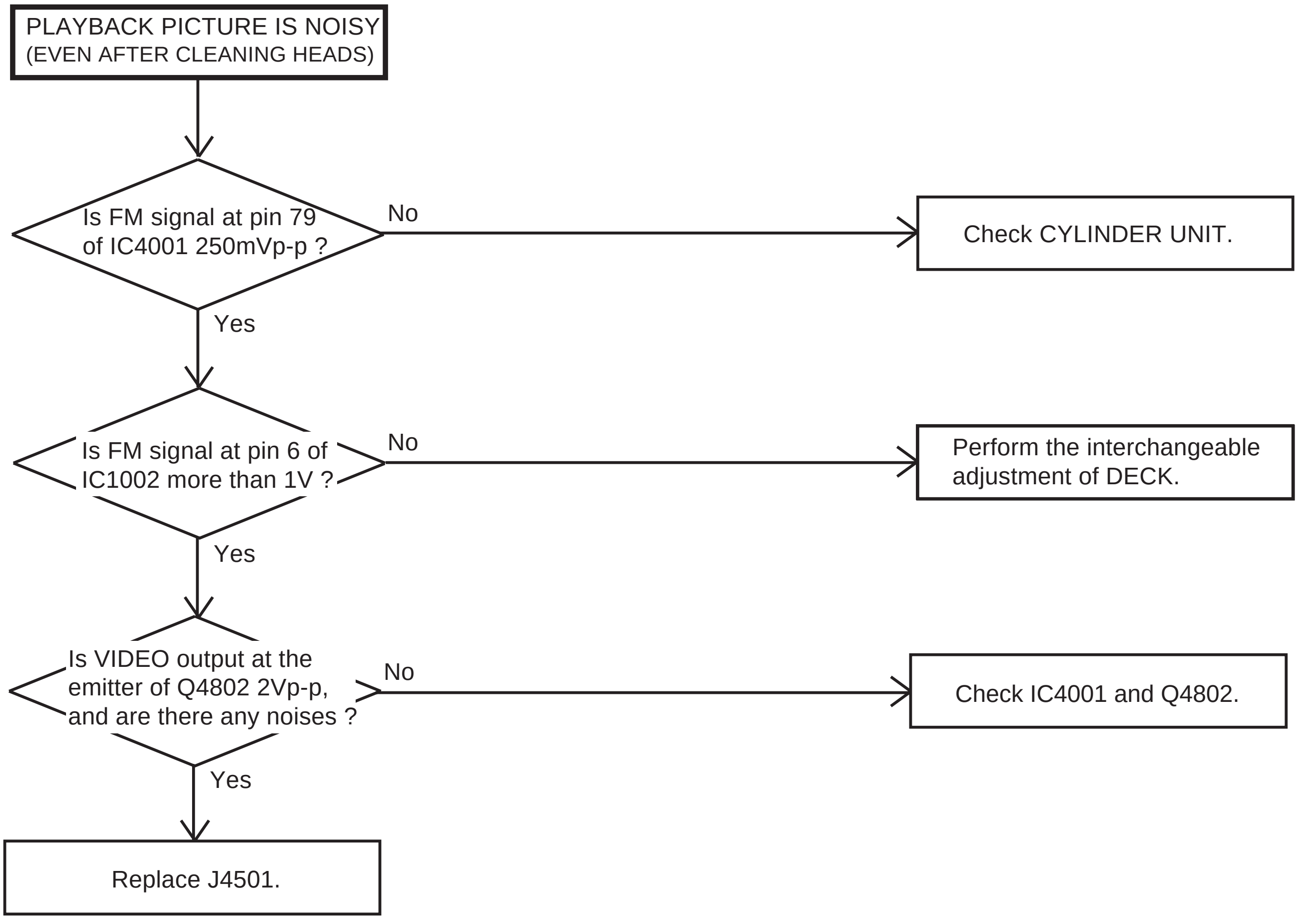
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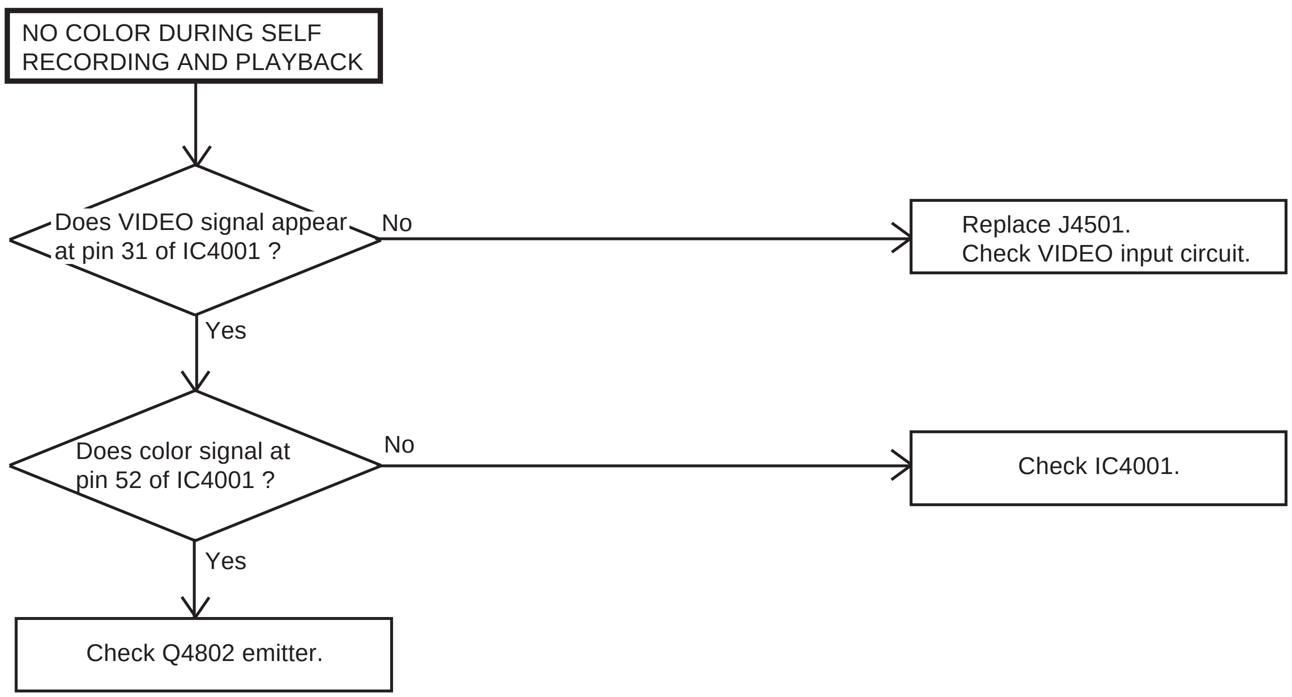
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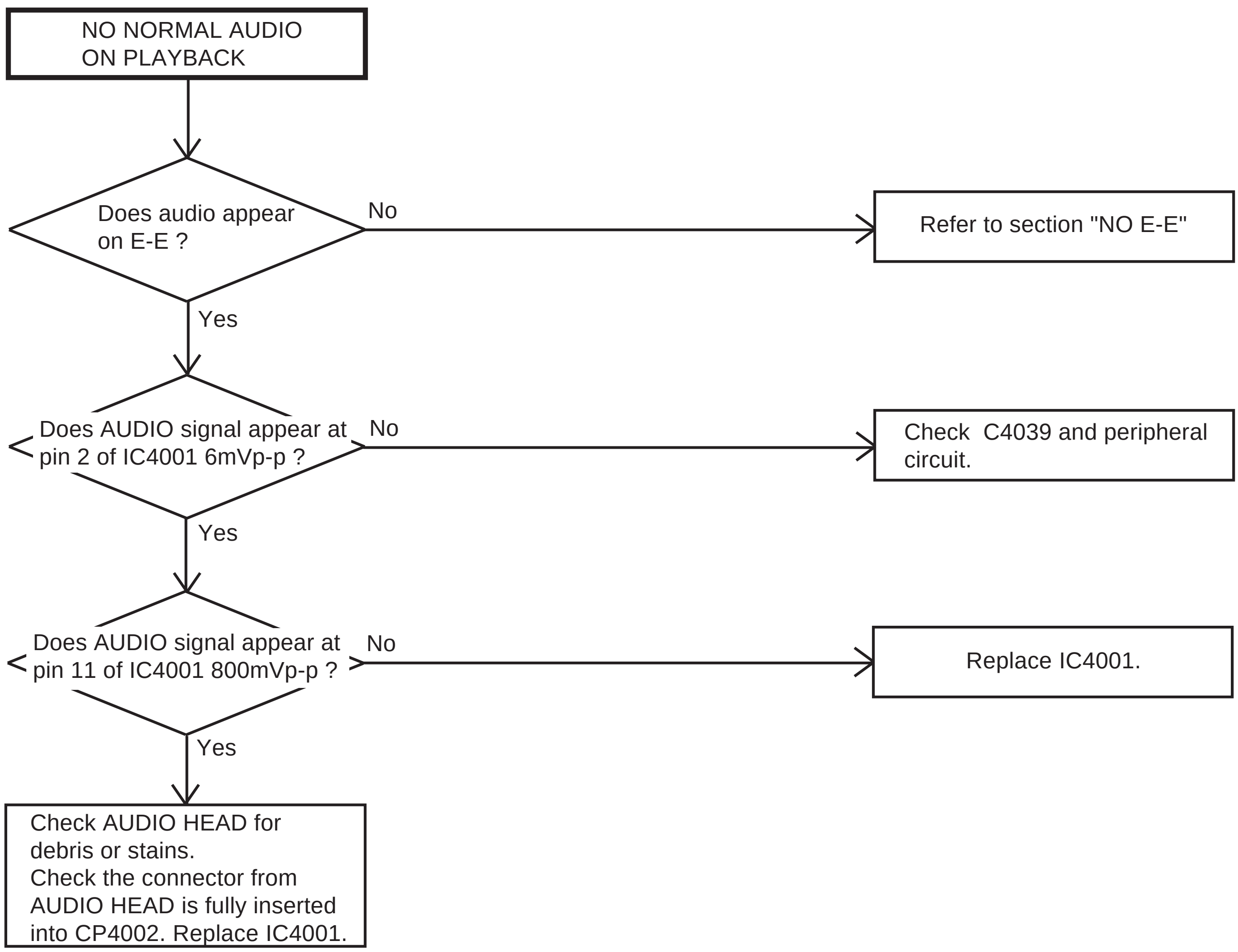
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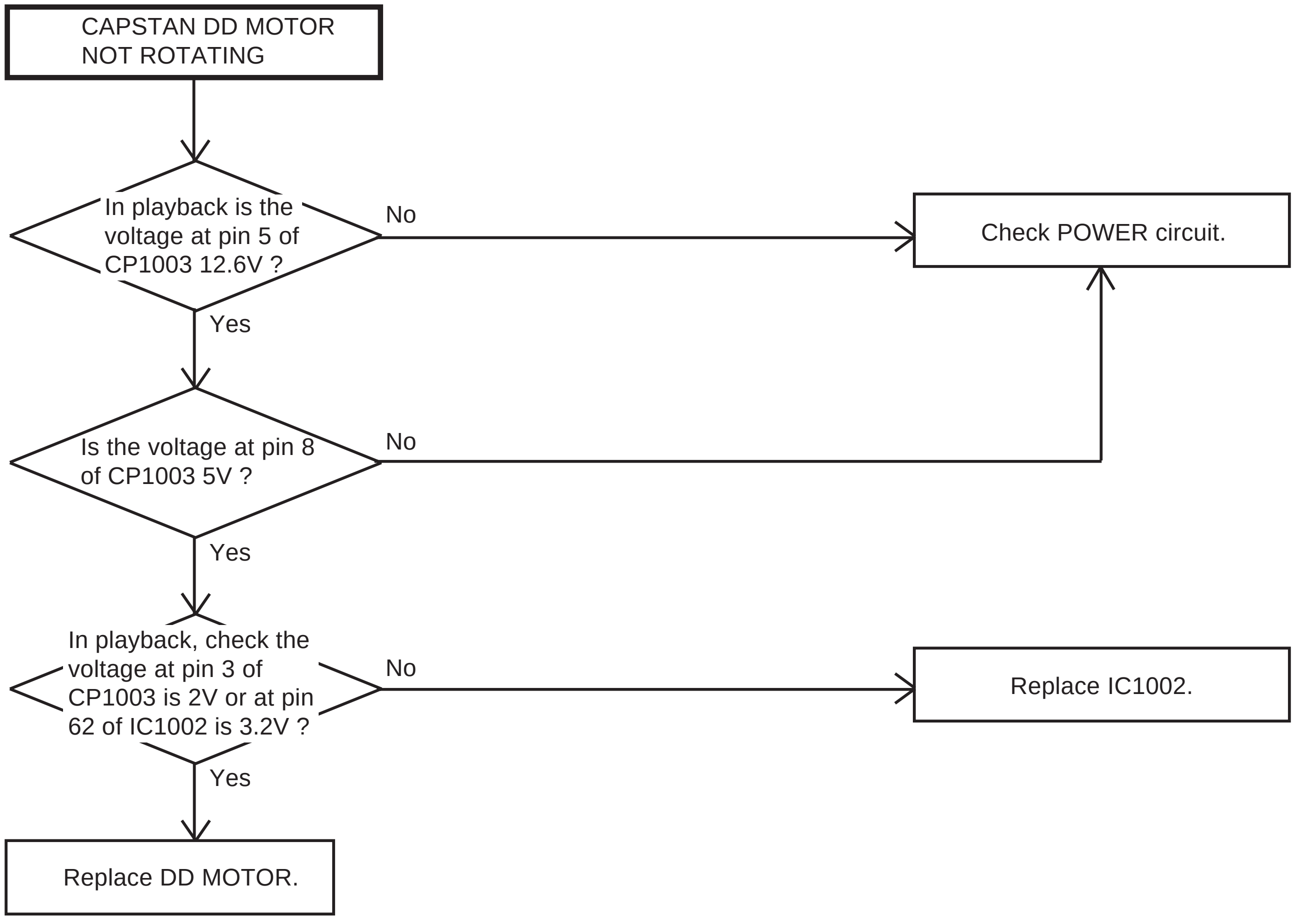
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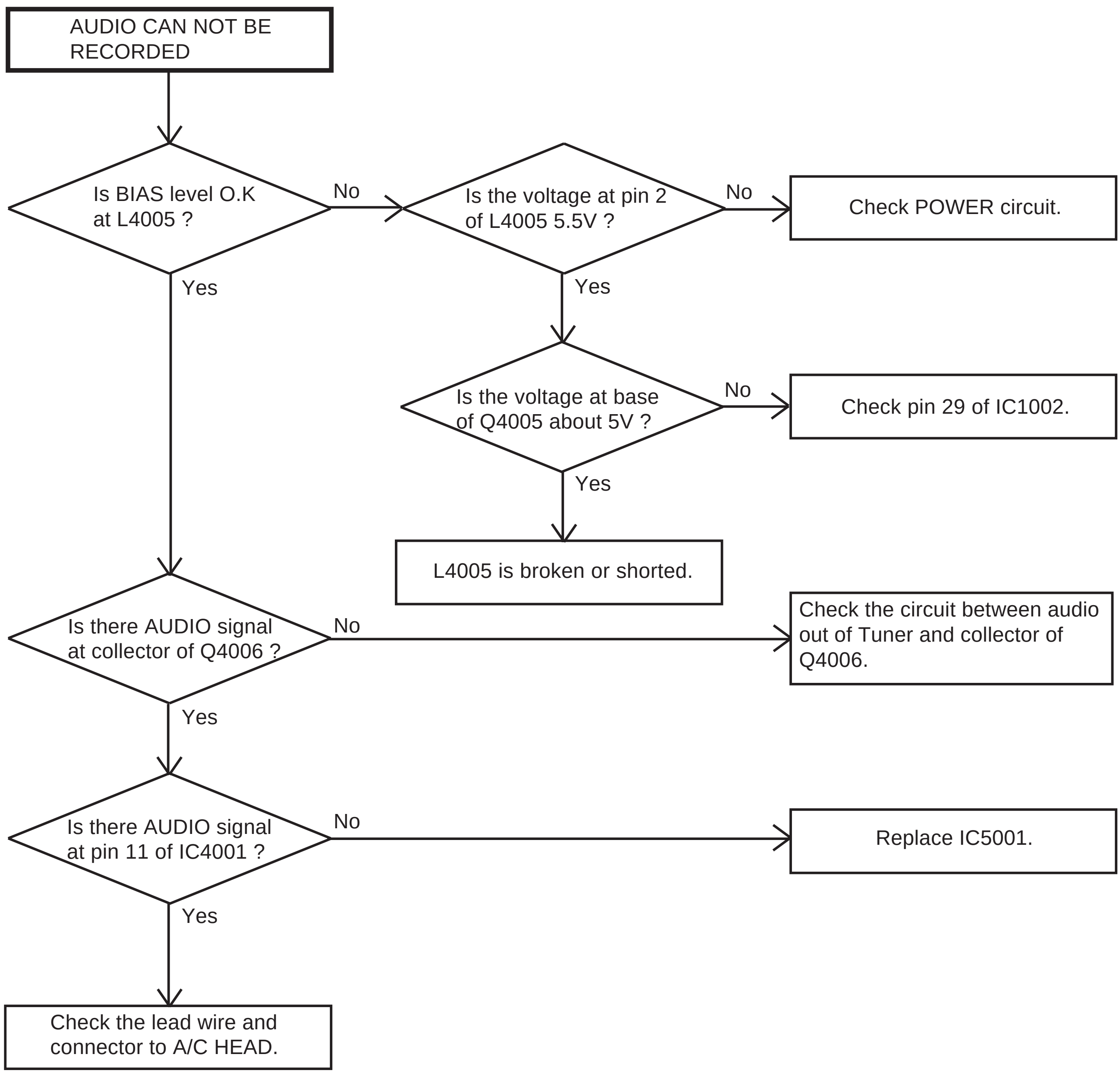
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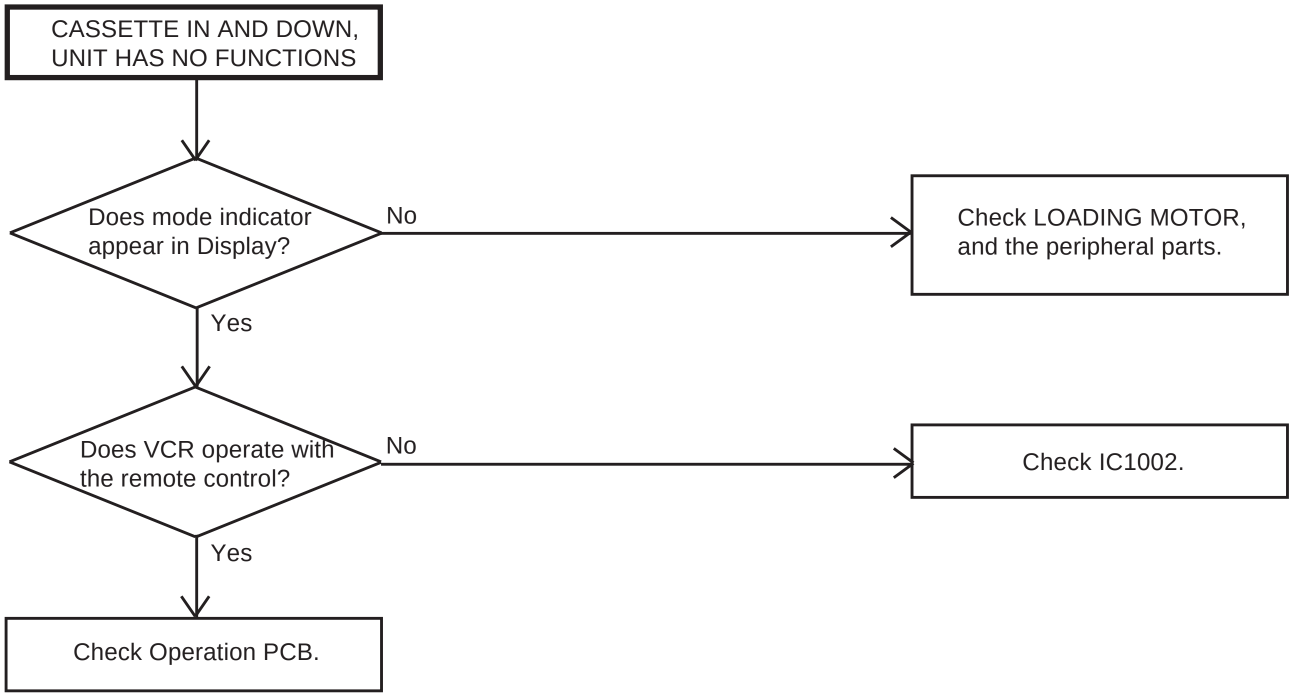
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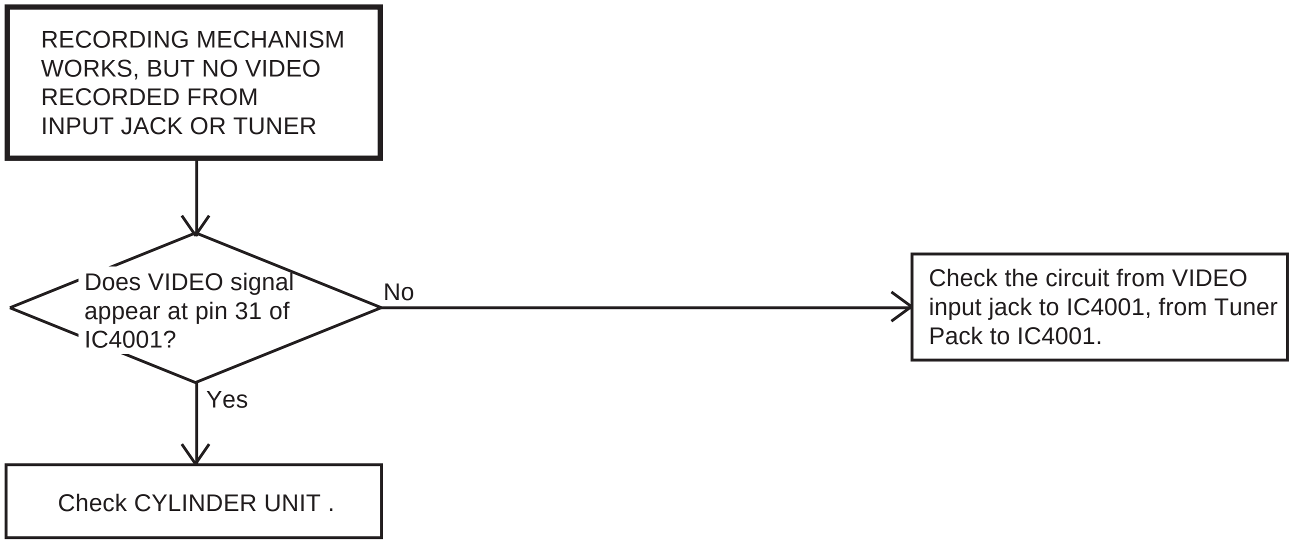
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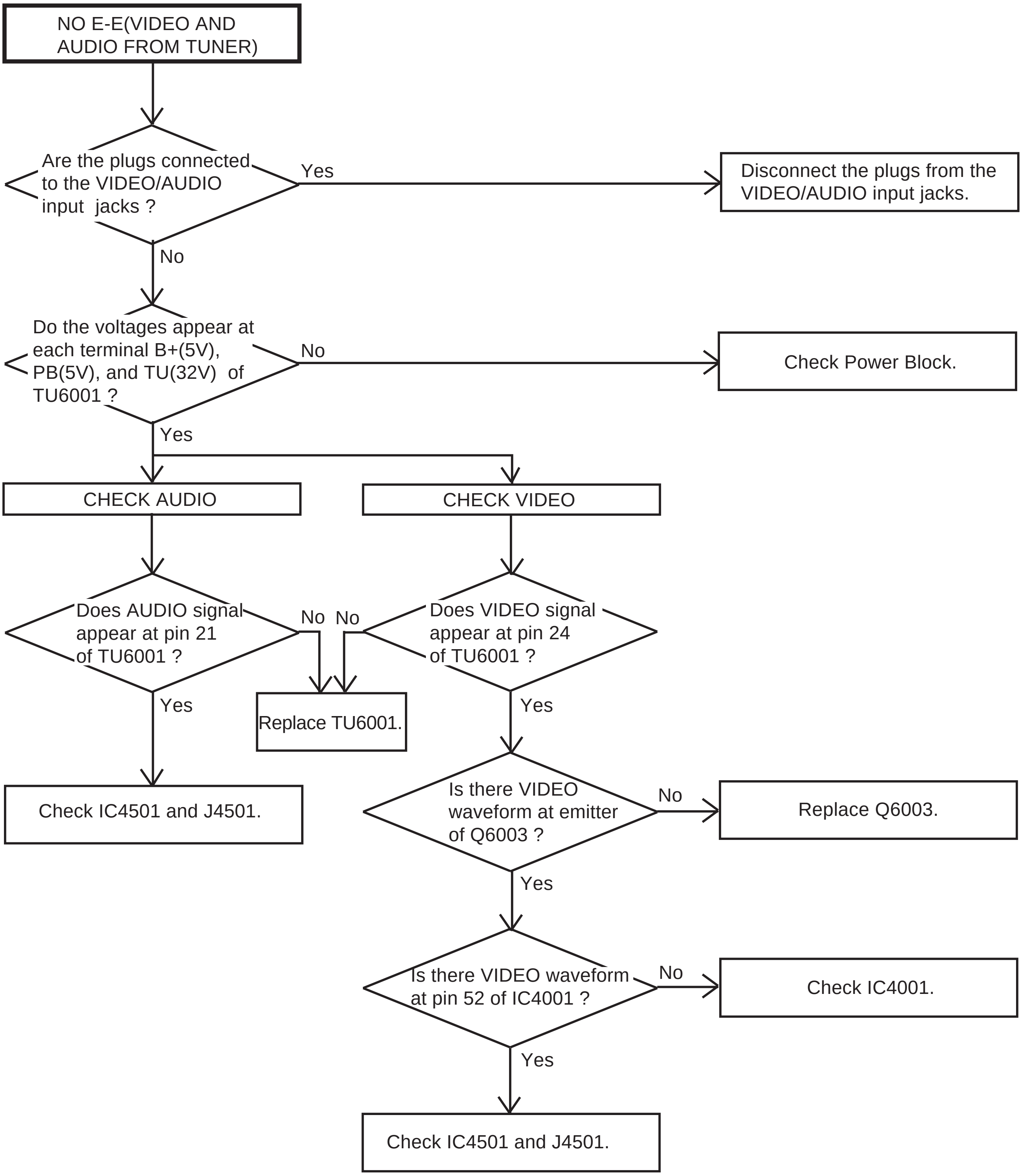
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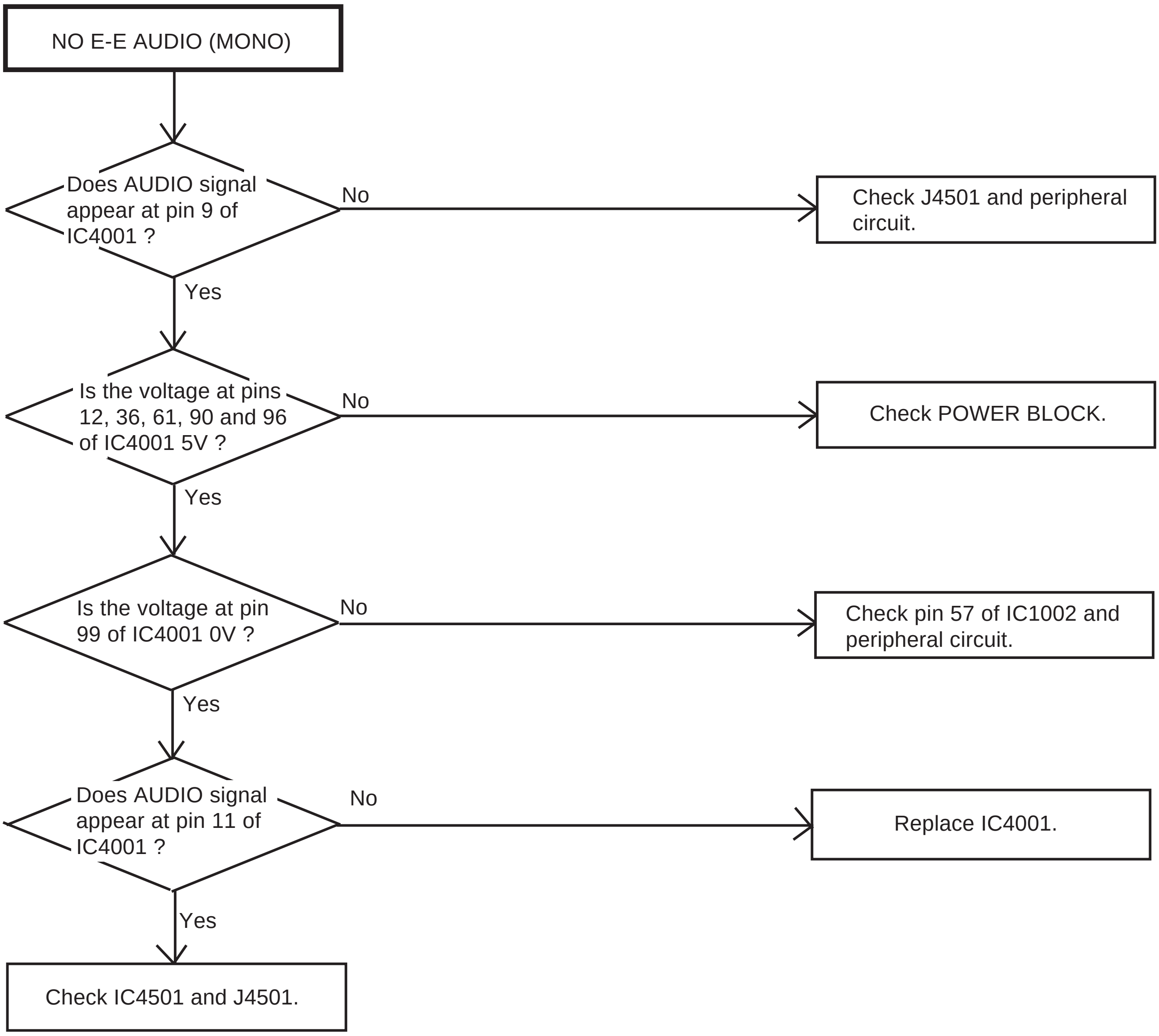
TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



IC DESCRIPTIONS

OEC7035A

Pin No.	Pin Name	I/O	Description
1	AFT-SC	I	AFT S Curve input for tuner.
2	AGC-DET	I	Input of CASS DOWN, TAB switch and setting of service mode.
3	EOT	I	Tape end sensor input signal.
4	BOT	I	Tape start sensor input signal.
5	RF SW/A-ENV	I	Ground.
6	V-ENV	I	Input terminal of video RF envelope.
7	KEY-A	I	Key A input.
8	KEY-B	I	Key B input.
9	MSSW A	O	Input terminal (A) of mecha state sensor.
10	MSSW B	O	Input terminal (B) of mecha state sensor.
11	CAP FWD	O	Capstan forward and backward command.
12	CAP LIMIT	O	Switch the maximum output current of the Capstan Motor.
13	D.V SYNC	O	Imitative V-SYNC signal output during the special playback.
14	REMOCON	I	Input the infrared remote control.
15	NC	O	Not used.
16	NC	O	Not used.
17	NC	I	Not used.
18	V.HEAD SW	O	Output terminal of Head Switch.
19	A.HEAD SW	O	Not used.
20	POWER ON A H	O	For control the user power switch ON/OFF.
21	NC	O	Not used.
22	SENS LED	O	Mecha state sensor LED.
23	NC	O	Not used.
24	NC	O	Not used.
25	FF/REW L	O	Output "L" when fast forwarding or rewinding.
26	CAP MID-H	O	Power of Capstan Motor select.
27	CAP HI-H	O	Power of Capstan Motor select.
28	HEATER SW	O	-30V ON/OFF Control.
29	NA REC-H	O	Control the Bias OSC for audio head.
30	VV-H	O	Not used.
31	SERVICE 1	I	Setting of service mode 1.
32	SP STILL H	O	Not used.
33	NC	O	Not used.
34	NC	-	Not used.
35	NC	-	Not used.
36	CLKSEL	-	5V.
37	VCC	-	5V.
38	X IN	I	Connect the main crystal(12 MHz).
39	X OUT	O	Connect the main crystal(12 MHz).
40	VSS	-	Ground.
41	XC IN	I	Subclock pulse(32.768 KHz).
42	XC OUT	O	Subclock pulse(32.768 KHz).
43	RESET	I	Input terminal of reset signal.
44	NC	O	Not used.
45	NC	O	Not used.
46	I/O CTL	O	Control the Audio/Video input/output.
47	LDM FWD	O	Output signal to control the rotation direction of the Loading Motor.
48	LDM REV	O	Output signal to control the rotation direction of the Loading Motor.
49	NC	O	Not used.
50	RGB ON-H	O	If the EE/VV is "EE" or TV/VCR is "TV" and PELI CTRL-L is "L", H Output will appear. And the others, "L" Output will appear.

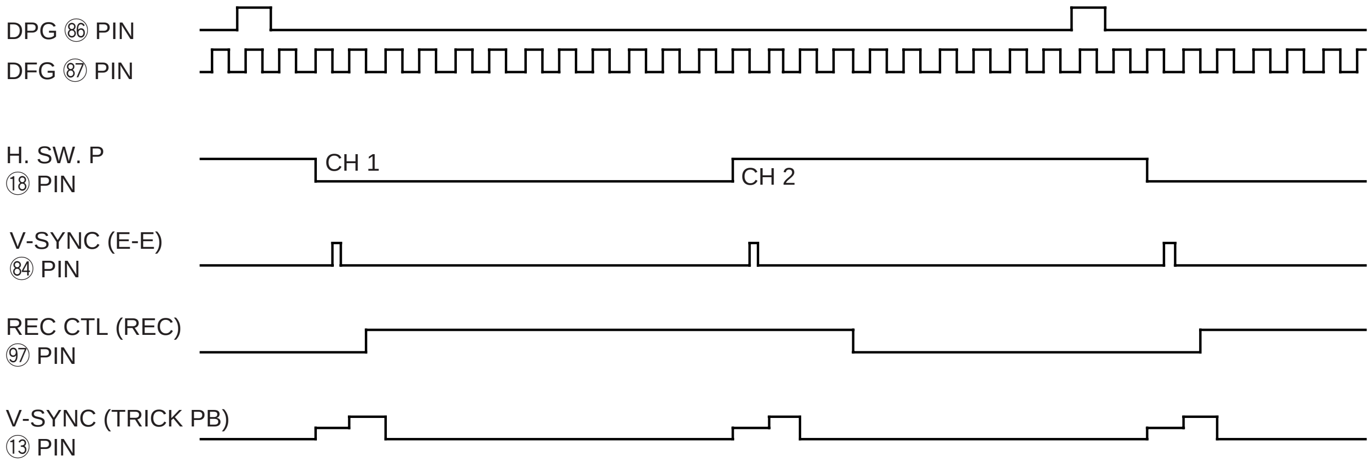
IC DESCRIPTIONS

OEC7035A

Pin No.	Pin Name	I/O	Description
51	POWER ON L	O	For control the user power switch ON/OFF.
52	NC	O	Not used.
53	ONE TOUCH PB	O	Control the LED for the ONE TOUCH PLAYBACK.
54	PELI CTL	I	Control the 21 pin IC output.
55	NC	O	Not used.
56	NC	O	Not used.
57	A.MUTE-H	O	This pin output the HIGH to mute the sound at the switching point between E-E and V-V during the special playback.
58	T.A.MUTE-H	O	Not used.
59	TAB SW	I	Input of TAB SW.
60	NC	I	Not used.
61	SD	O	Not used.
62	CAP ON	O	Control the Capstan Motor rotation direction.
63	CG-CS	O	Output the CS signal of character generator IC.
64	FLD-CS	I	User switch for the auto start ON/OFF.
65	FLD-D OUT	O	Timing output of data transmission and receiving with FIP driver.
66	FLD-D IN	I	Receiving of Key switch data from FIP driver.
67	FLD-CLK	O	Indication data and mode transmission to FIP driver.
68	CG-DATA	O	Output the Data of OSD.
69	NC	I	Not used.
70	CG-CLK	O	Output the Clock of OSD.
71	IIC-CLK	O	Clock output to Hi-Fi IC.
72	IIC-SDA	I/O	DATA input/output to Hi-Fi IC.
73	32K MONI	O	Output 32.768KHz monitor(16.384KHz output) to check the clock.
74	Hi-Fi MUTE	O	Control the Hi-Fi IC.
75	V-REC-ST	O	Control the Head Amp for video and Hi-Fi audio.
76	PICTURE CTL	O	Output pulse to control the Y/C IC for sharpness.
77	CAP-CTL	O	Output servo of the capstan motor.
78	CYL-CTL	O	Output "L" when fast forwarding or rewinding.
79	REEL-S	I	Input terminal of reel sensor supply.
80	REEL-T	I	Input terminal of reel sensor take up.
81	NC	-	Not used.
82	P.FAIL	I	Input for the detection of power interruption.
83	NC	-	Not used.
84	C SYNC	I	Input Compound synchronized signal.
85	CFG	I	Input terminal for Capstan FG signal detection.
86	DPG	I	Input terminal for Drum PG signal detection.
87	DFG	I	Input terminal for Drum FG signal detection.
88	AMP VSS	-	Ground.
89	AMP V.OUT	O	Output the Analogue Amp standard voltage.
90	AMP V.IN	I	Input the Analogue Amp standard voltage.
91	CTL-	I/O	Input and output terminal of CTL AMP.
92	CTL+	I/O	Input and output terminal of CTL AMP.
93	CTL SW OUT	O	Output terminal of CTL AMP positive.
94	CTL AMP IN	I	Input terminal of CTL AMP.
95	AMP C	-	Ground.
96	CTL VSS	-	Connect the VSS.
97	CTL AMP OUT	I/O	Output terminal of CTL AMP circuit.
98	CTL VCC	-	5V.
99	A VCC	-	Voltage terminal for general circuit.
100	NC	I	Not used.

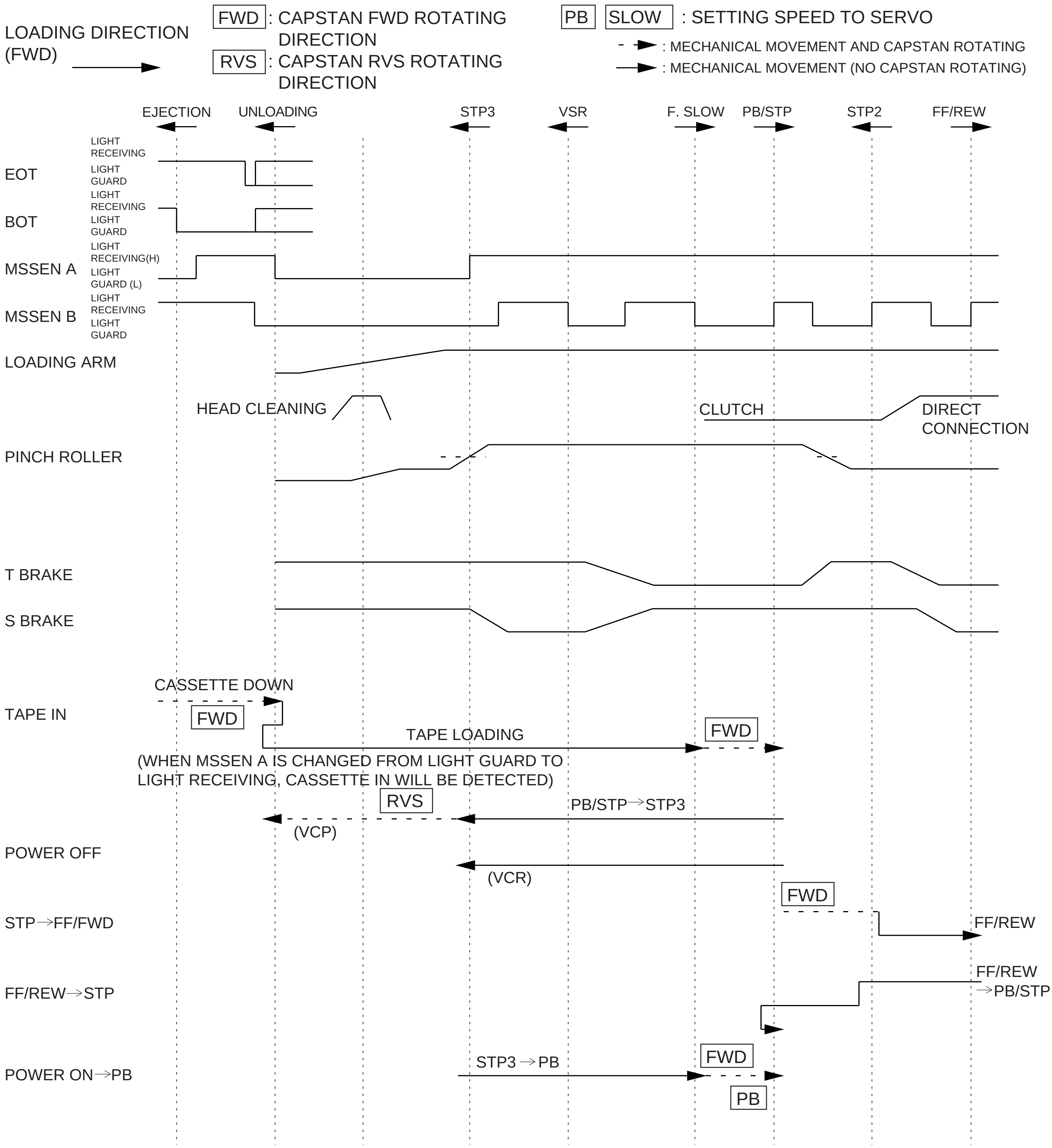
SERVO TIMING CHART

IC1001 (OEC7035A)



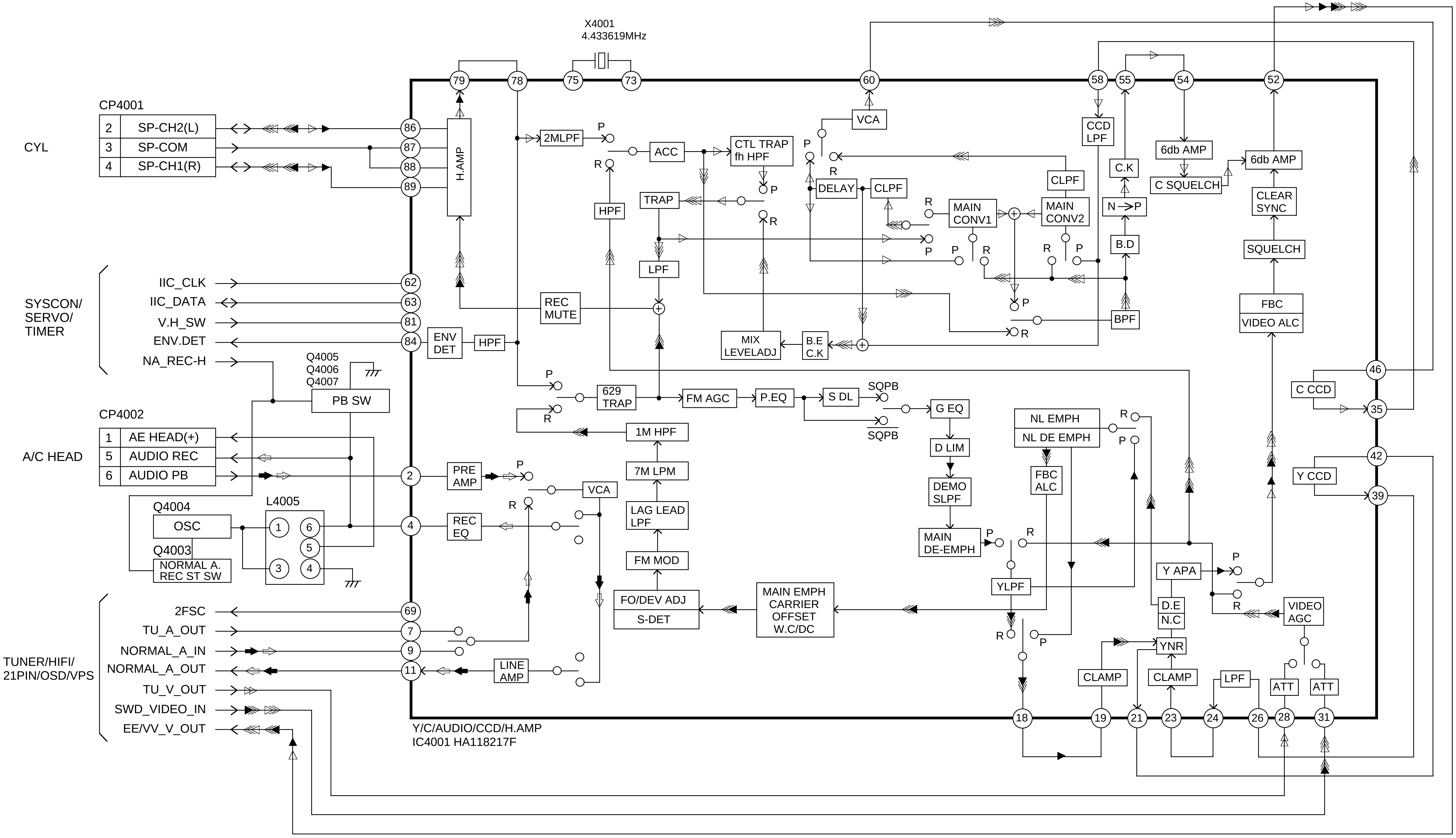
• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

SYSTEM SWITCH MODE



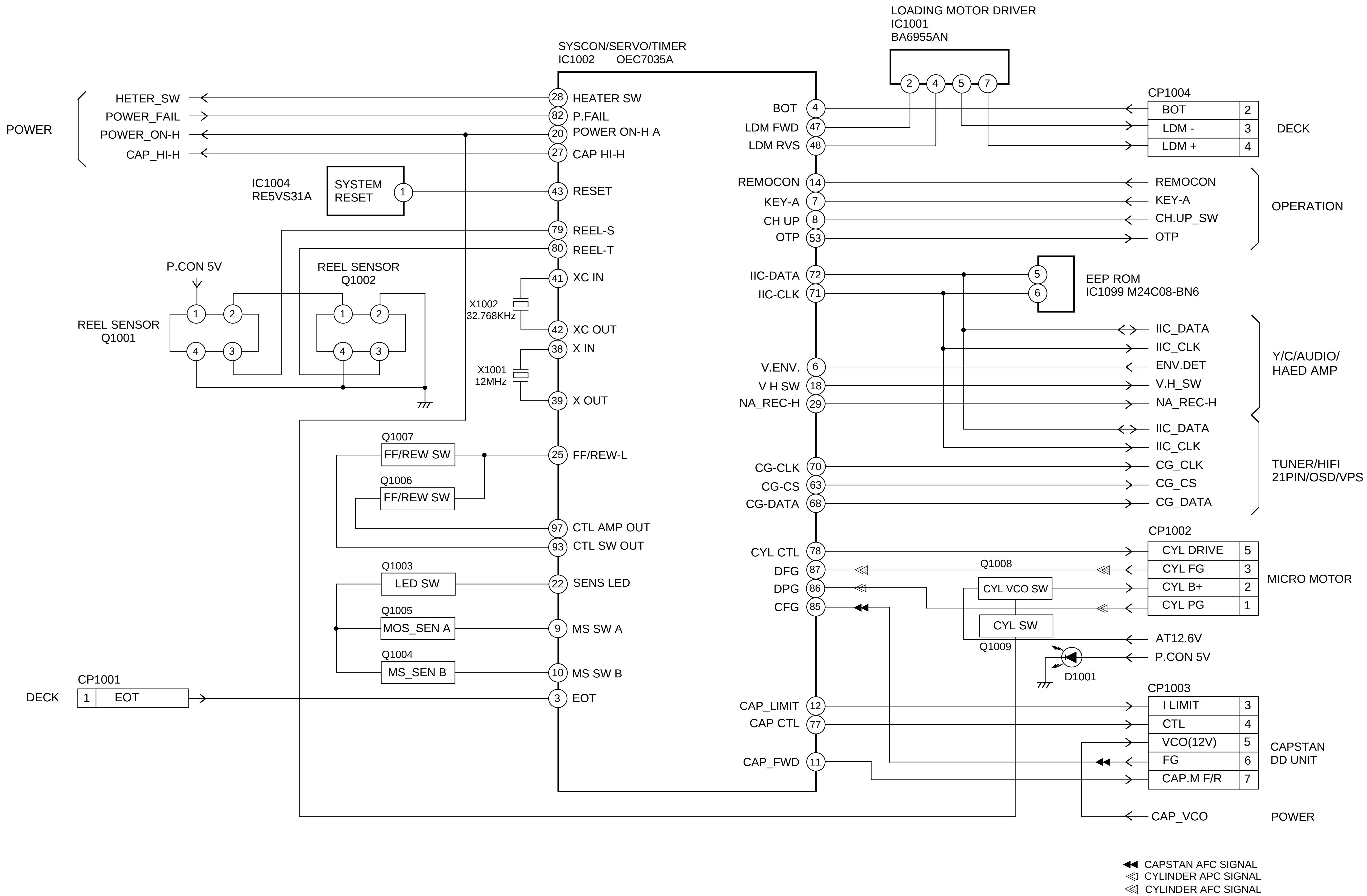
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

(MODEL:HV-GX900K)

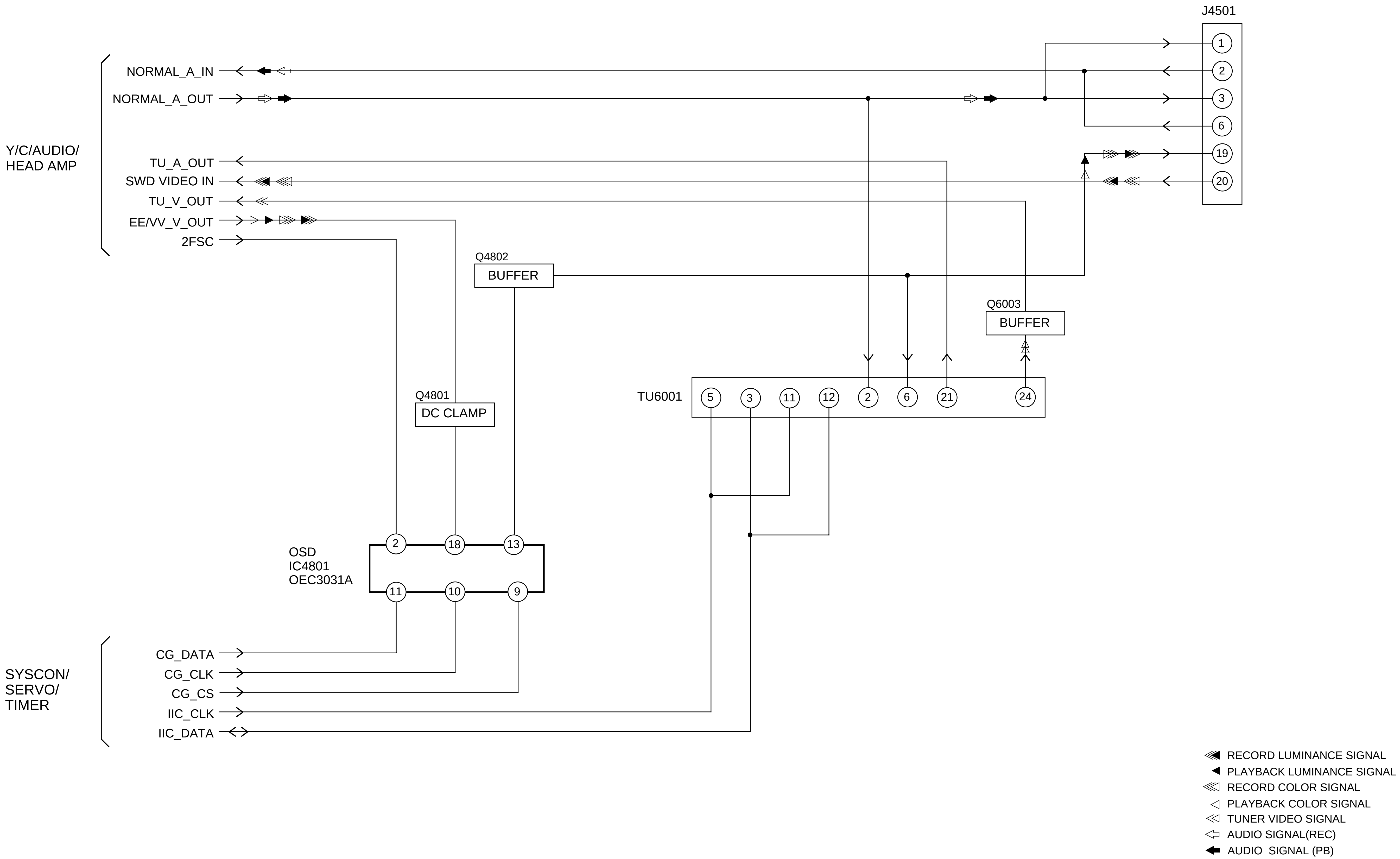


RECORD LUMINANCE SIGNAL
PLAYBACK LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK COLOR SIGNAL
TUNER VIDEO SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL (PB)

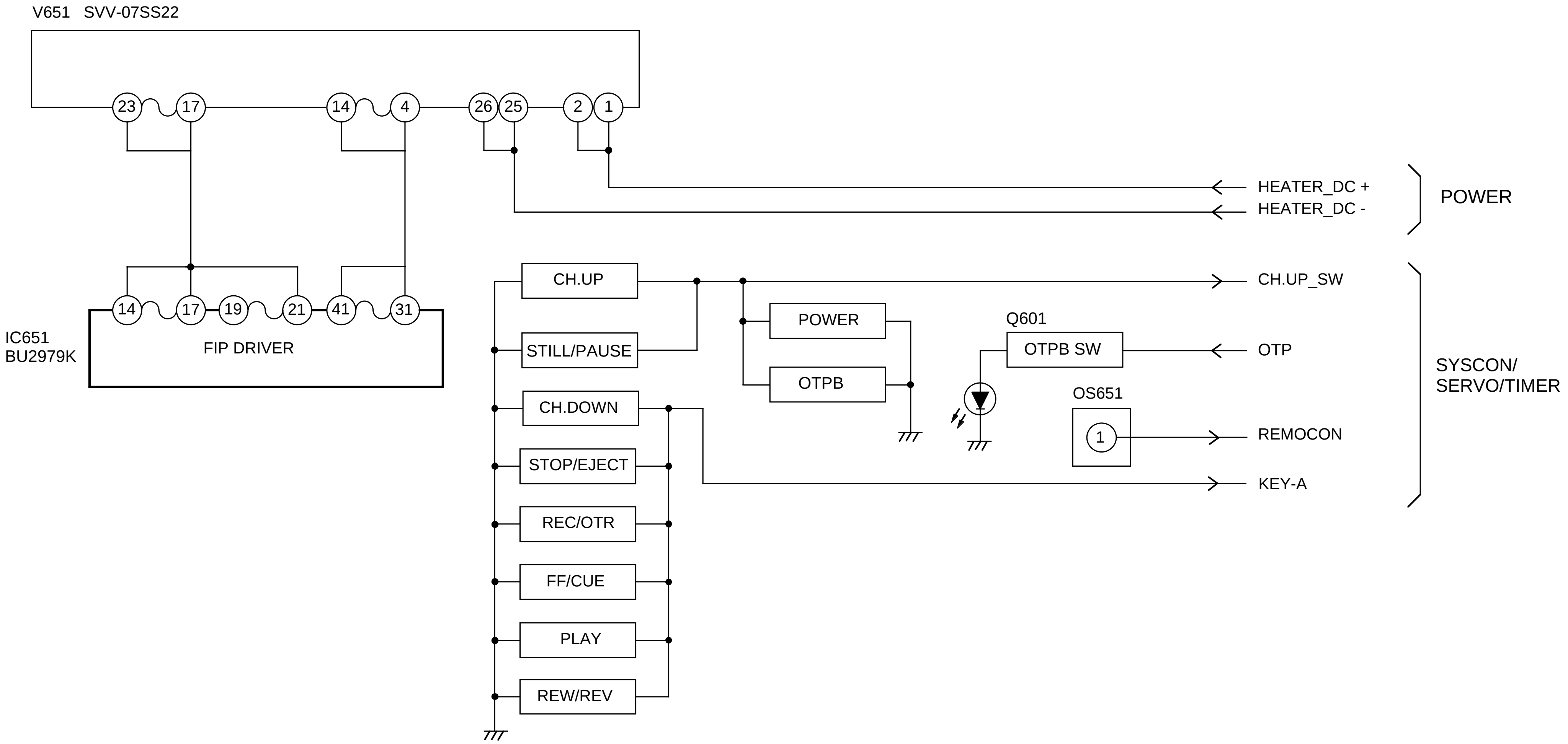
SYSTEM CONTROL/SERVO/TIMER BLOCK DIAGRAM
(MODEL:HV-GX900K)



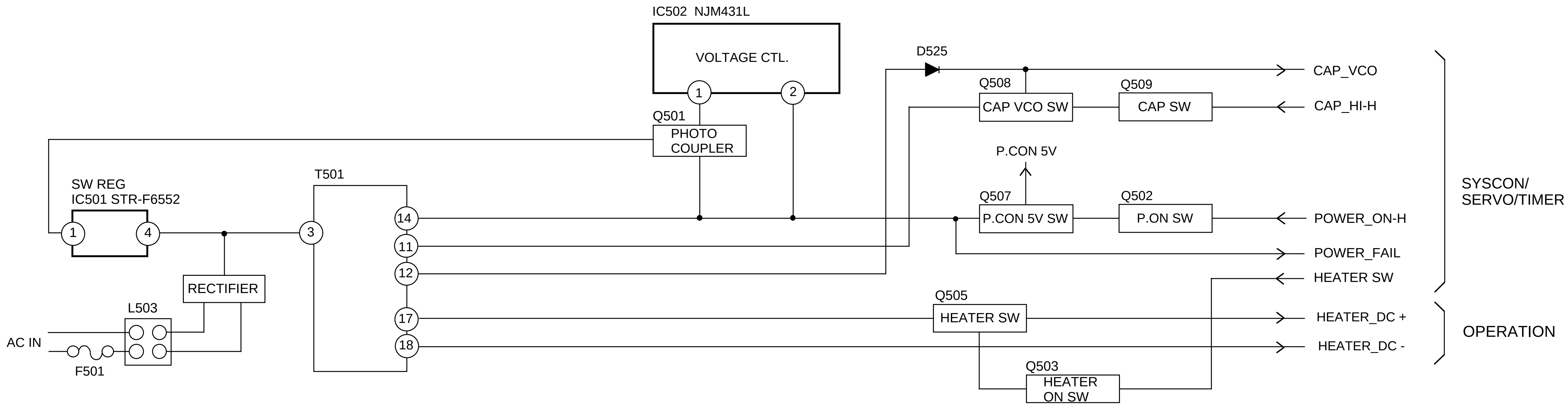
TUNER/HIFI/21PIN/OSD/VPS BLOCK DIAGRAM
(MODEL:HV-GX900K)



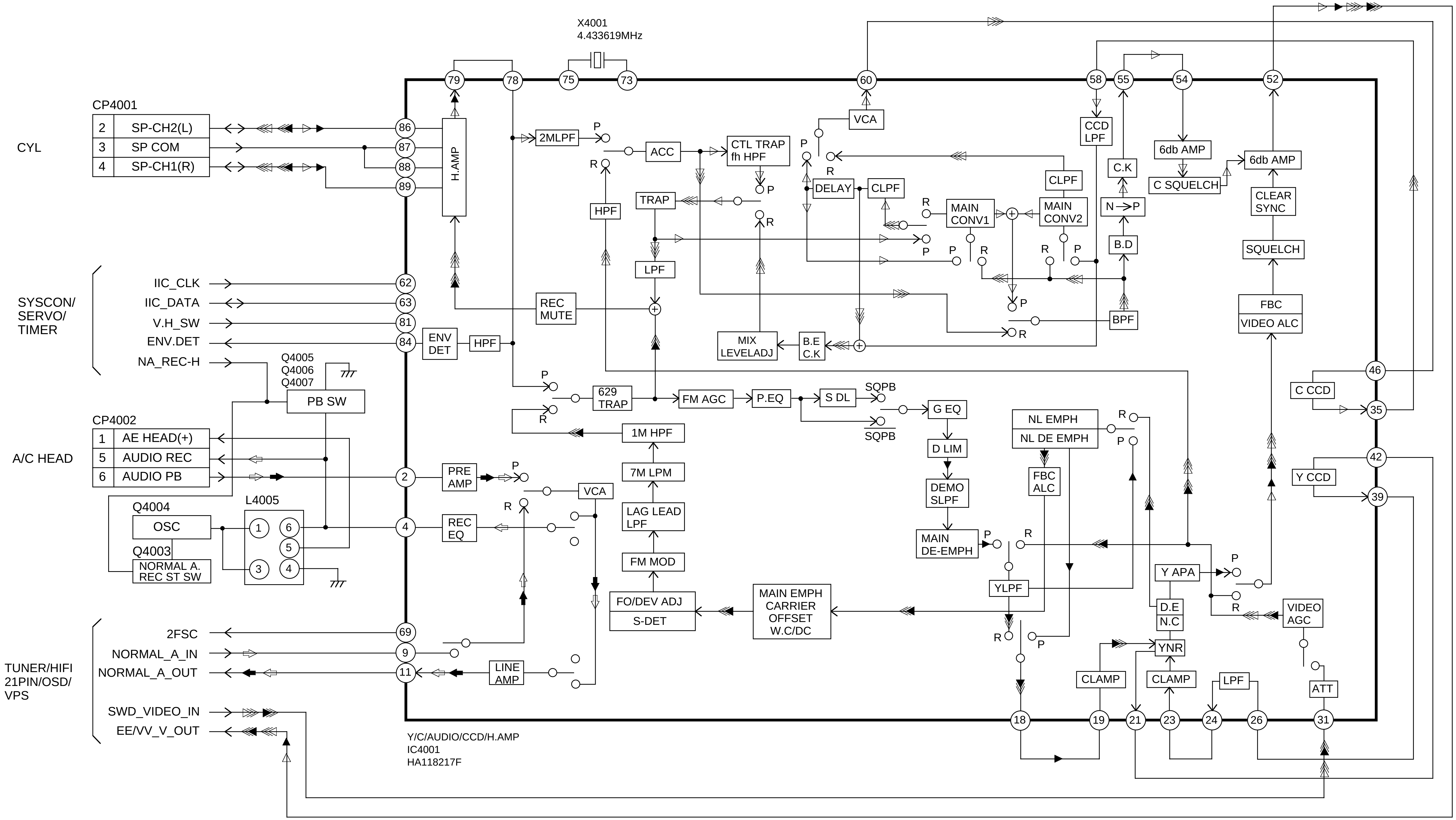
OPERATION BLOCK DIAGRAM
(MODEL:HV-GX900K/HV-GX950K)



POWER BLOCK DIAGRAM
(MODEL:HV-GX900K/HV-GX950K)



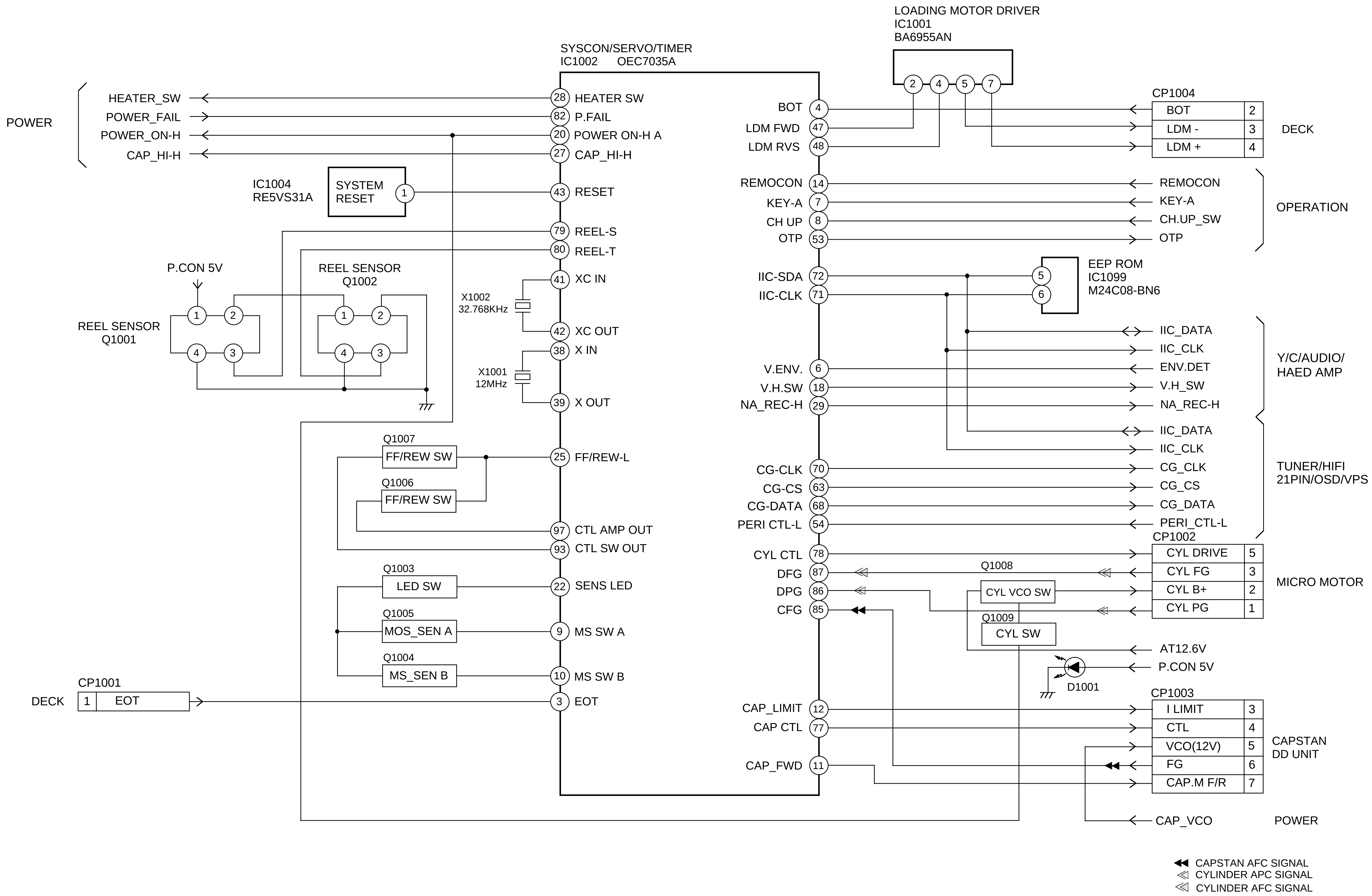
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM
(MODEL:HV-GX950K)



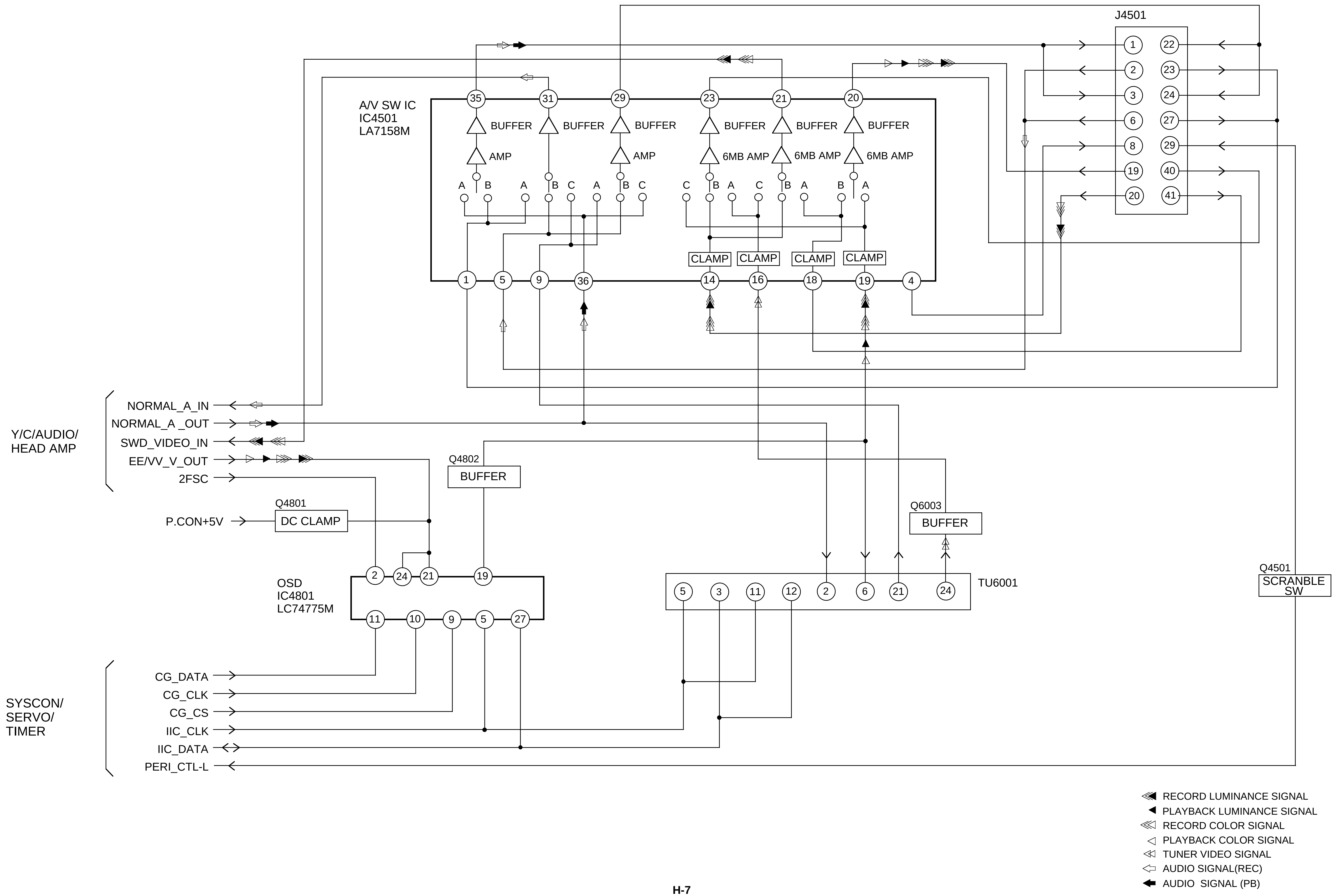
- RECORD LUMINANCE SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- RECORD COLOR SIGNAL
- PLAYBACK COLOR SIGNAL
- AUDIO SIGNAL(REC)
- AUDIO SIGNAL (PB)

SYSTEM CONTROL/SERVO/TIMER BLOCK DIAGRAM

(MODEL:HV-GX950K)



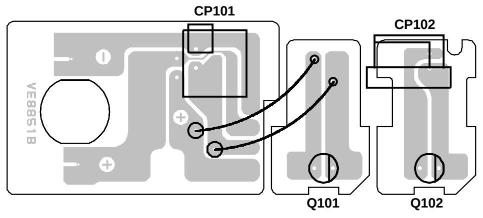
TUNER/HIFI/21PIN/OSD/VPS BLOCK DIAGRAM
(MODEL:HV-GX950K)



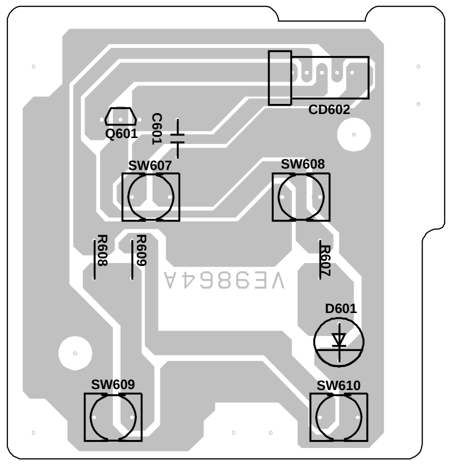
PRINTED CIRCUIT BOARDS

(MODEL:HV-GX900K/HV-GX950K)

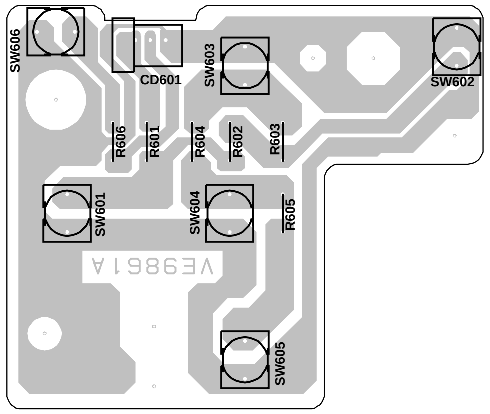
DECK



OPERATION 2



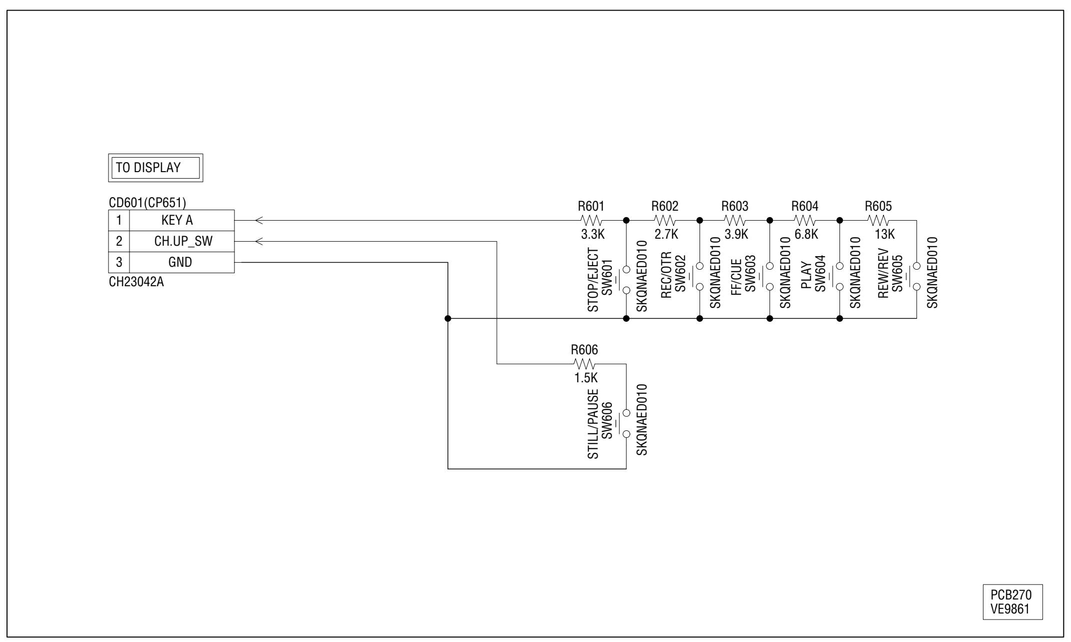
OPERATION 1



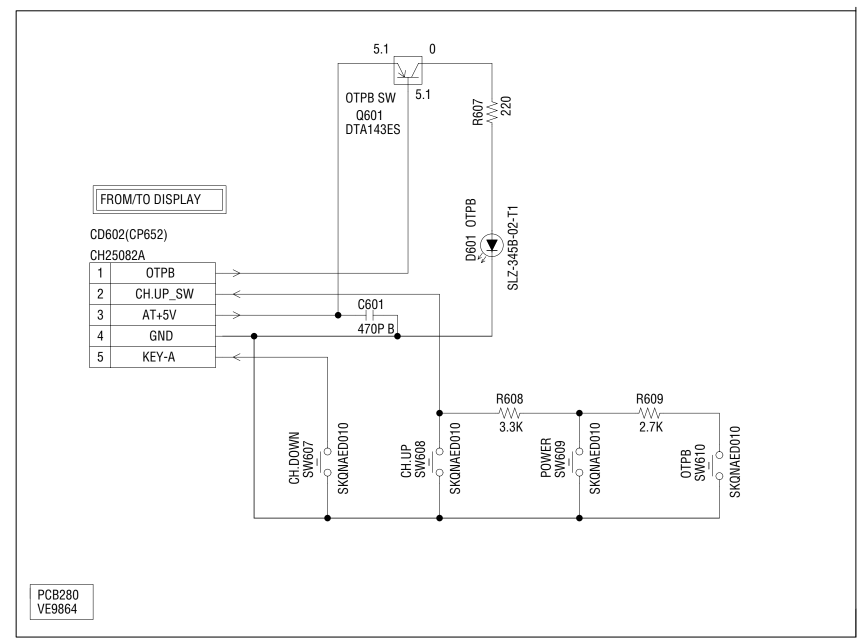
OPERATION SCHEMATIC DIAGRAM

(MODEL:HV-GX900K/HV-GX950K)

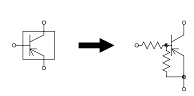
(OPERATION 1 PCB)



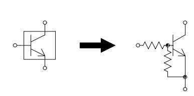
(OPERATION 2 PCB)



CAUTION: DIGITAL TRANSISTOR



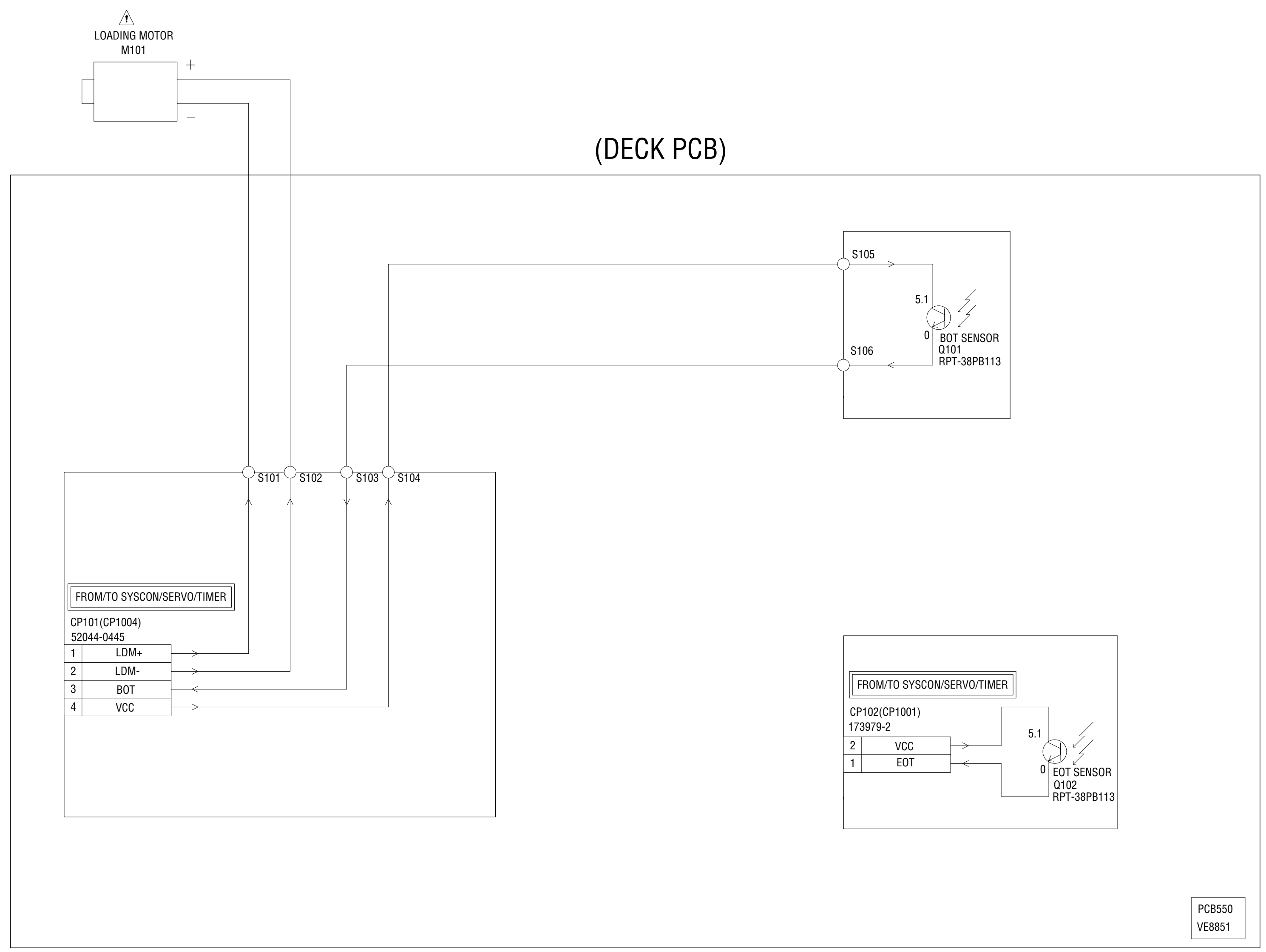
CAUTION: DIGITAL TRANSISTOR



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

DECK SCHEMATIC DIAGRAM
(MODEL:HV-GX900K/HV-GX950K)

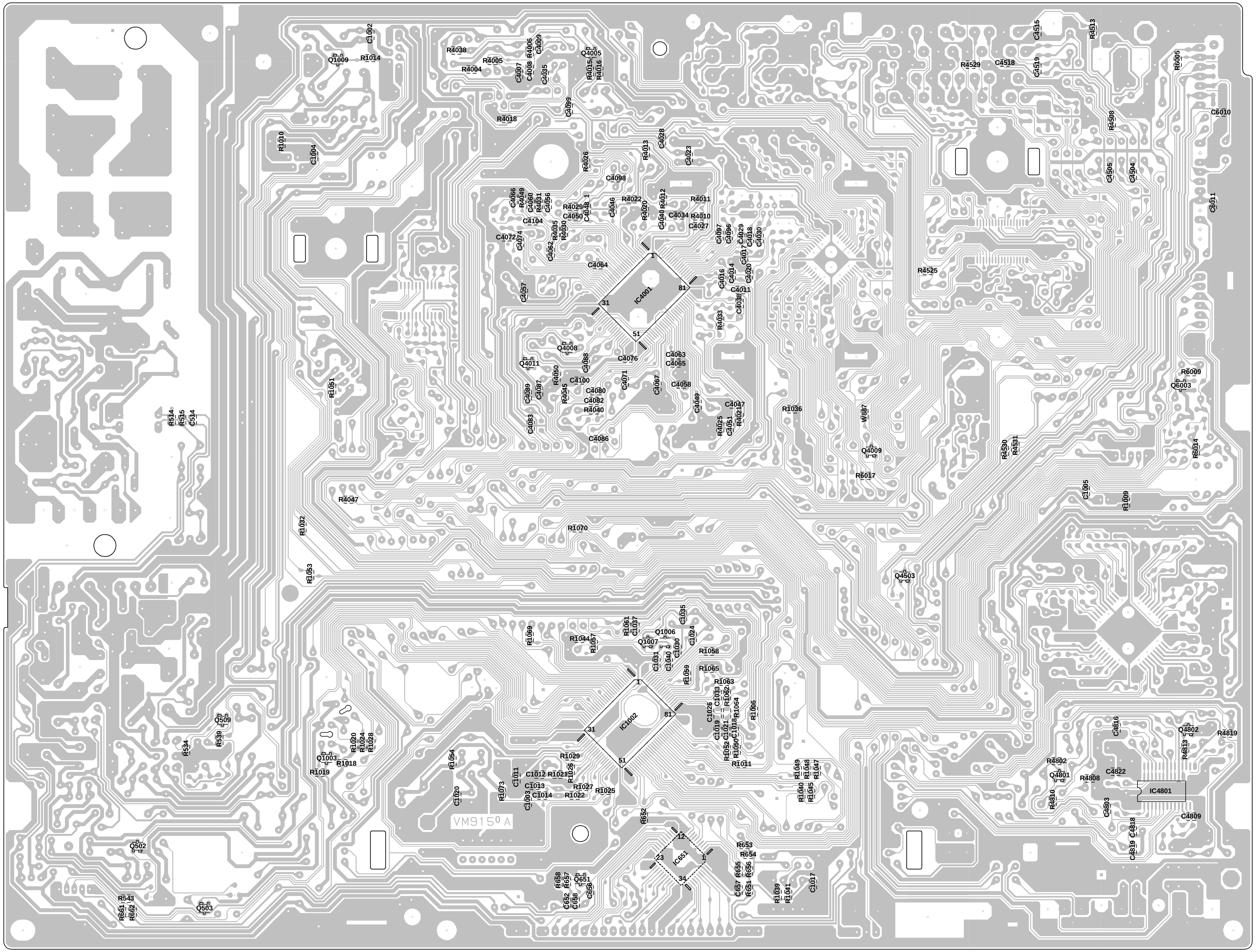


CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

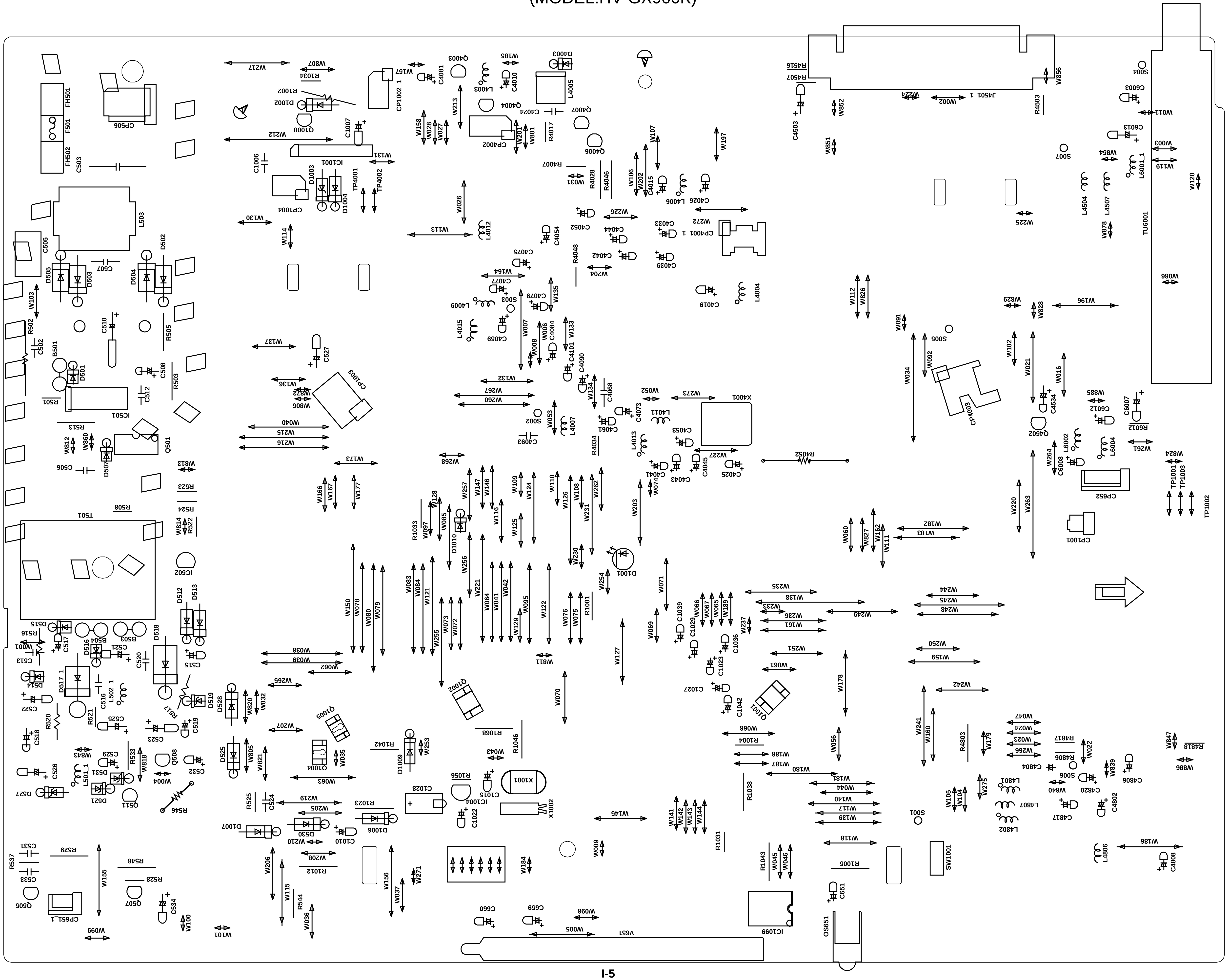
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

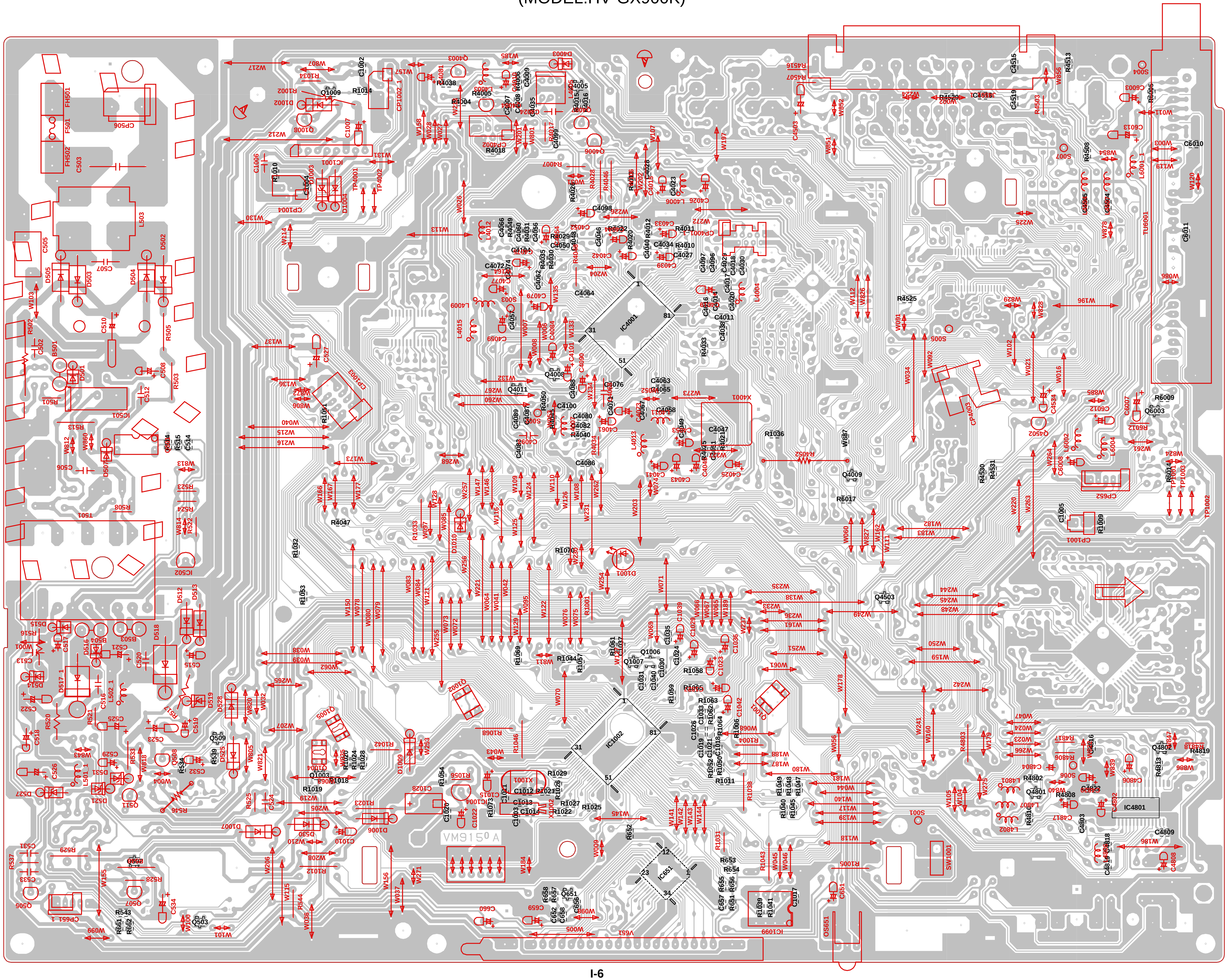
PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX900K)



PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX900K)



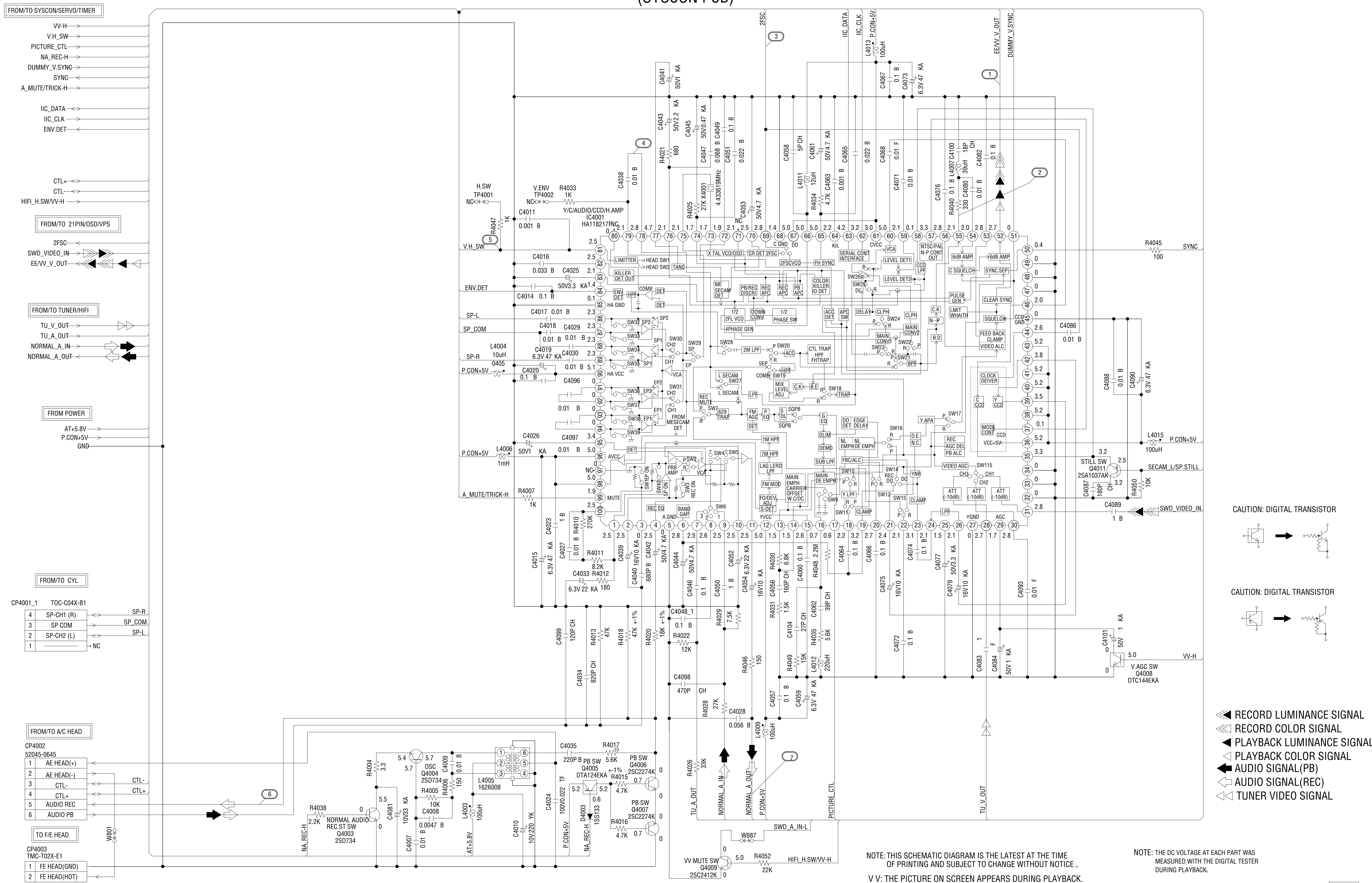
PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX900K)



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(MODEL:HV-GX900K)

(SYSCON PCB)



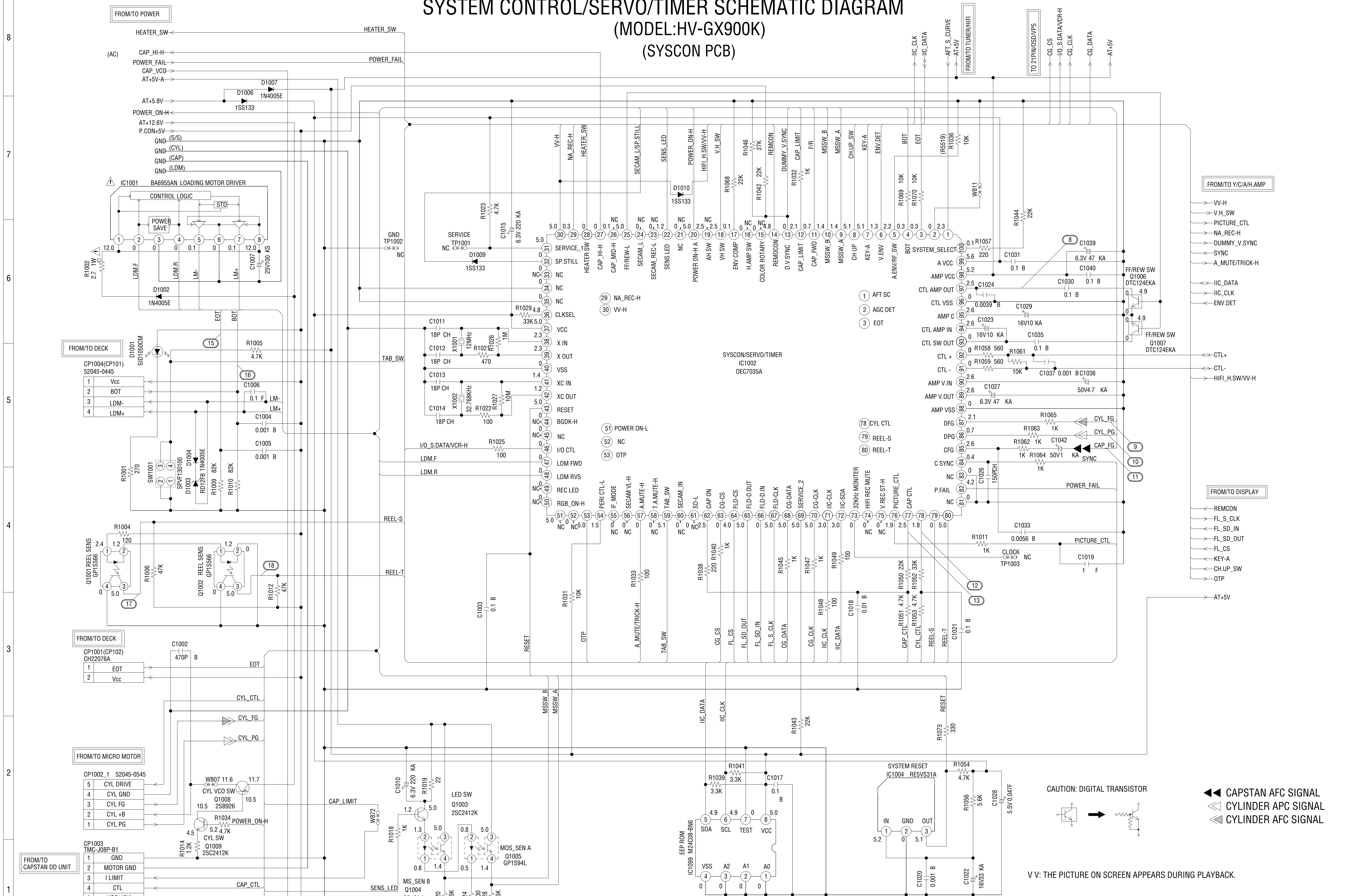
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

V V: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010
VM9150

SYSTEM CONTROL/SERVO/TIMER SCHEMATIC DIAGRAM
(MODEL:HV-GX900K)
(SYSCON PCB)



V V: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

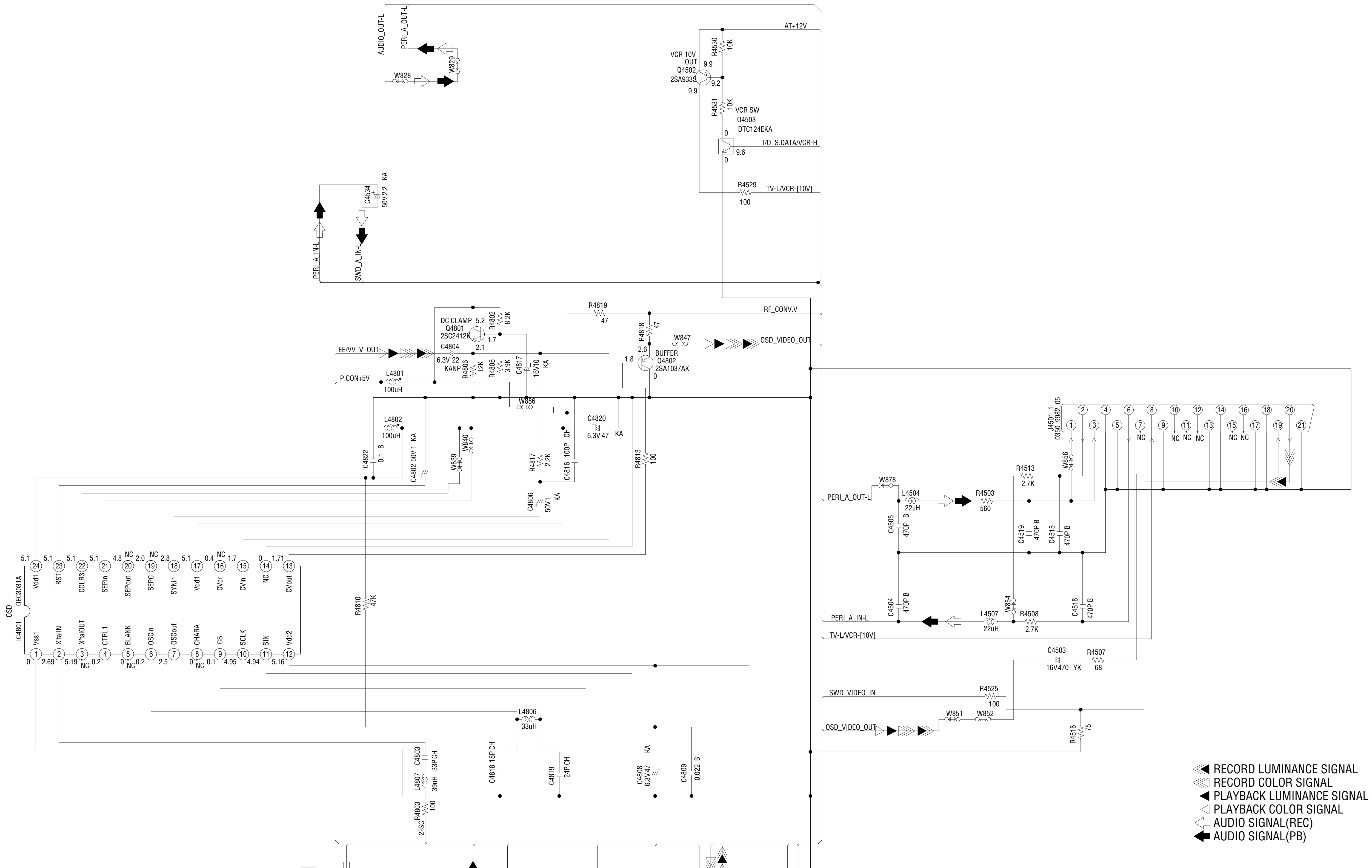
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCB010
VM9150

21PIN/OSD/VPS SCHEMATIC DIAGRAM

(MODEL:HV-GX900K)

(SYSCON PCB)



CAUTION: DIGITAL TRANSISTOR

V V: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

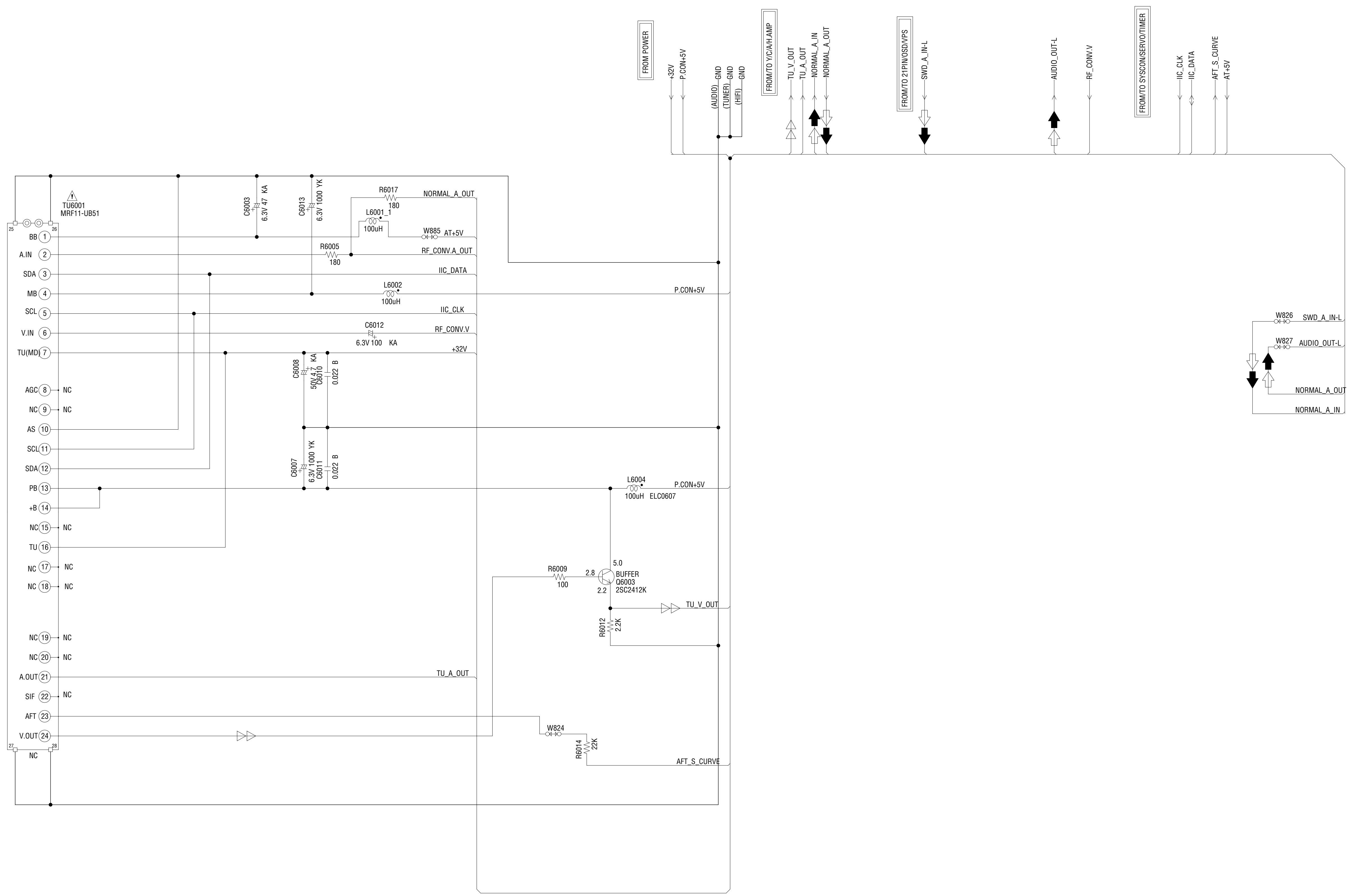
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010
VM9150

TUNER/HIFI SCHEMATIC DIAGRAM

(MODEL:HV-GX900K)

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

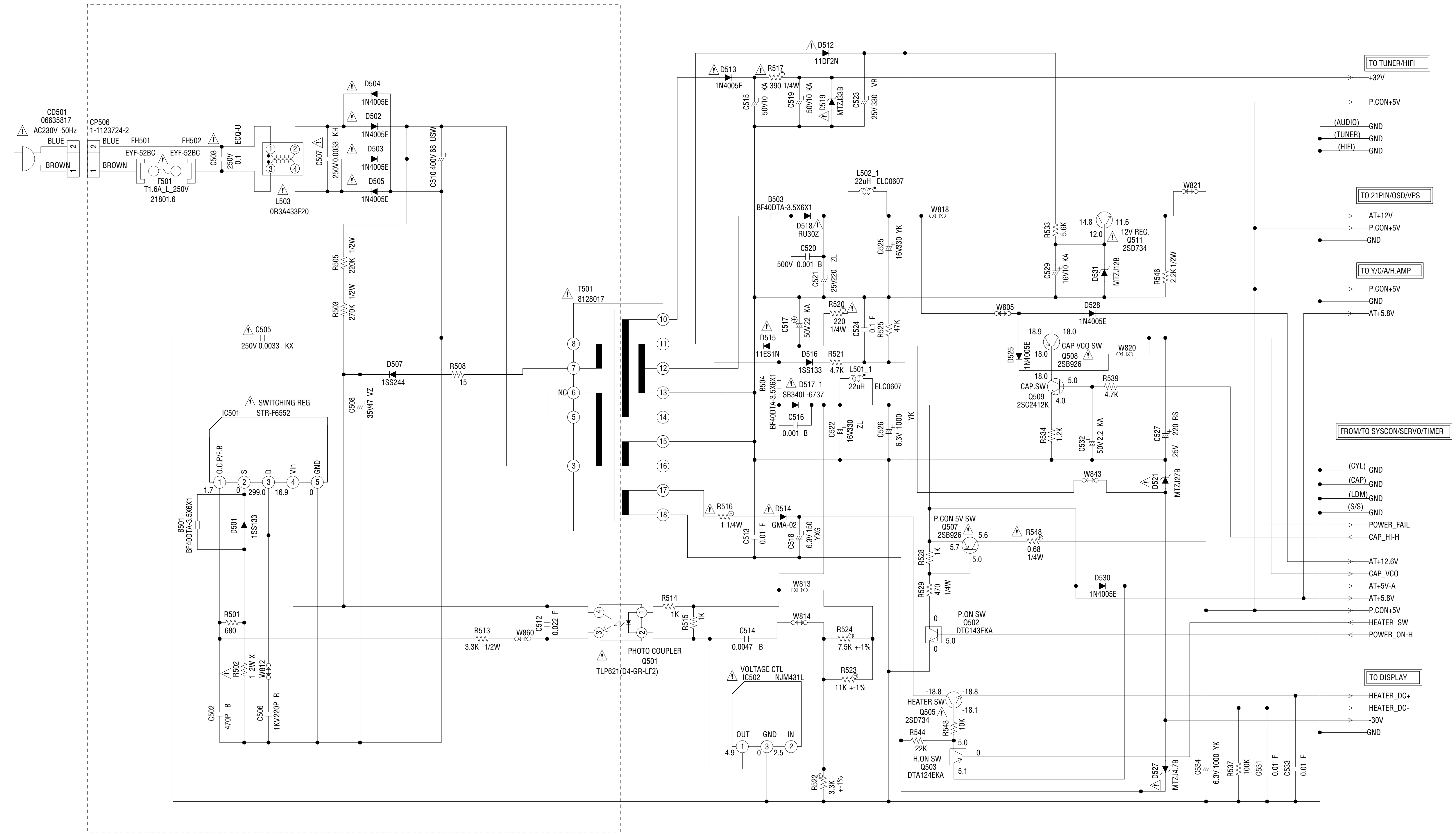
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

TUNER VIDEO SIGNAL
AUDIO SIGNAL(PB)
AUDIO SIGNAL(REC)

PCB010
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POWER SCHEMATIC DIAGRAM
(MODEL:HV-GX900K)
(SYSCON PCB)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

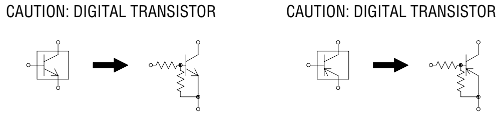
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

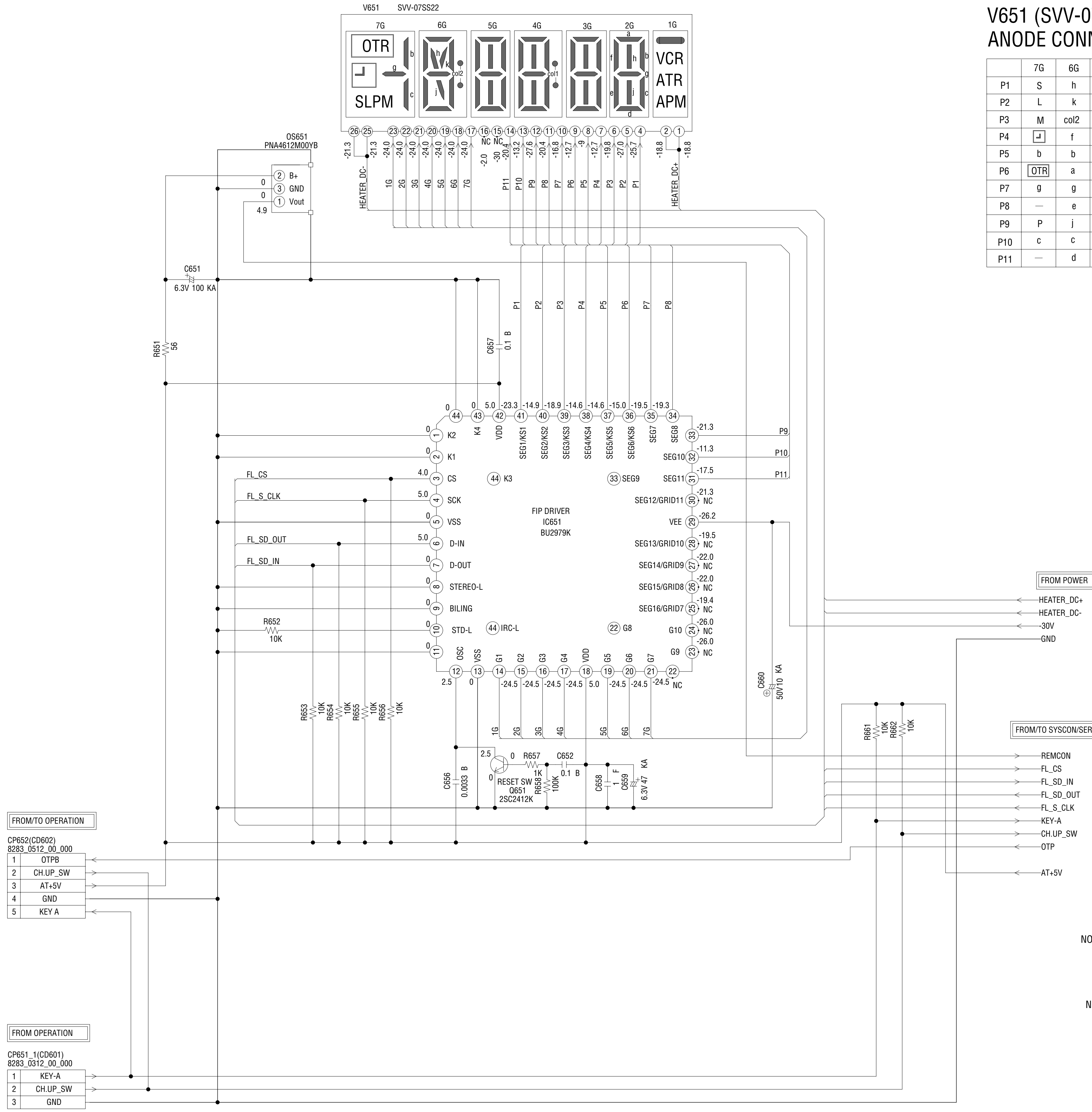
CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR



PCB010
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DISPLAY SCHEMATIC DIAGRAM
(MODEL:HV-GX900K/HV-GX950K)
(SYSCON PCB)



V651 (SVV-07SS22) ANODE CONNECTION

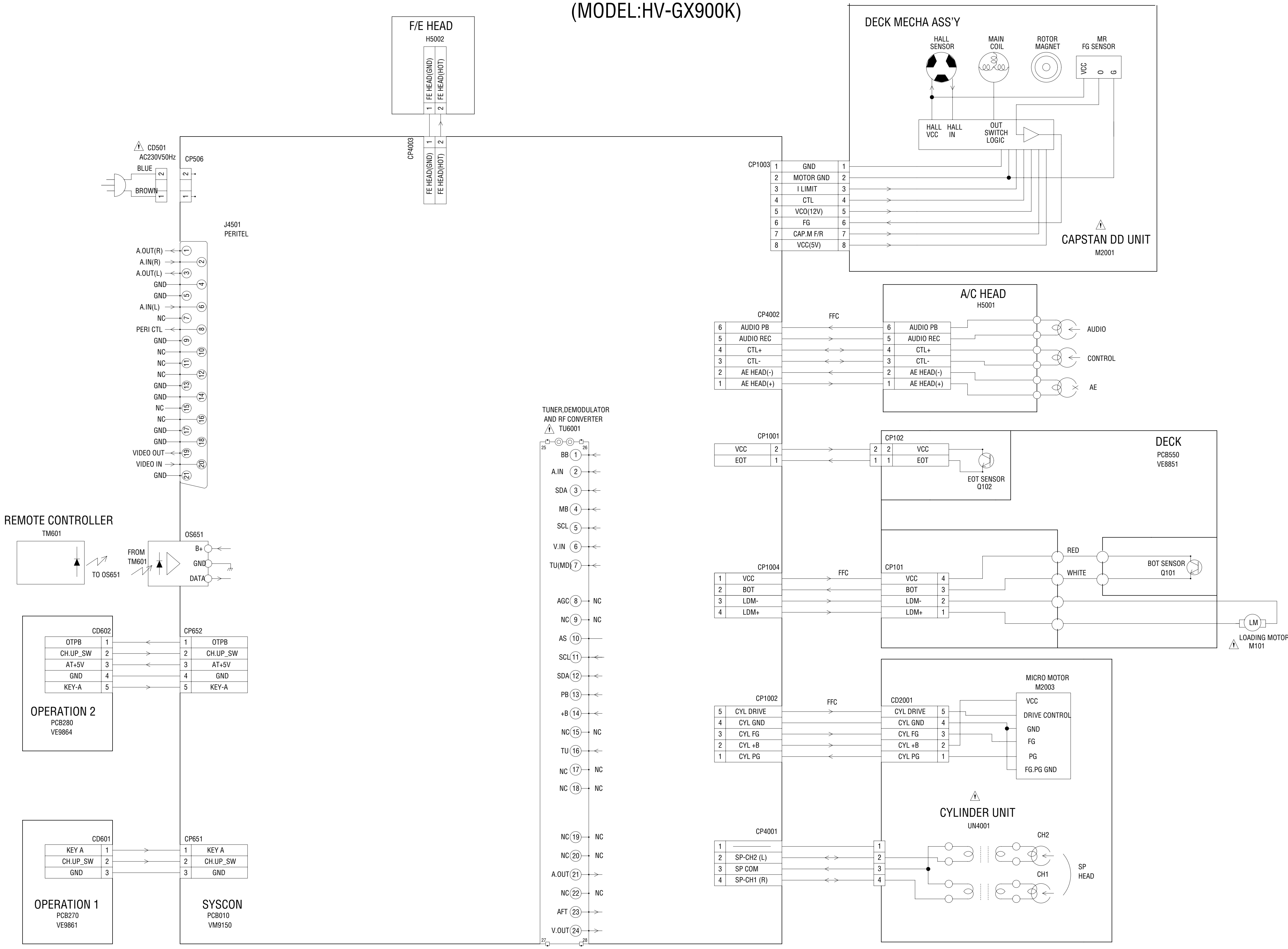
	7G	6G	5G	4G	3G	2G	1G
P1	S	h	h	h	h	h	M
P2	L	k	—	—	—	—	P
P3	M	col2	—	col1	—	—	A
P4	┘	f	f	f	f	f	ATR
P5	b	b	b	b	b	b	VCR
P6	OTR	a	a	a	a	a	▬
P7	g	g	g	g	g	g	—
P8	—	e	e	e	e	e	—
P9	P	j	j	j	j	j	—
P10	c	c	c	c	c	c	—
P11	—	d	d	d	d	d	—

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

PCB010
VM9150

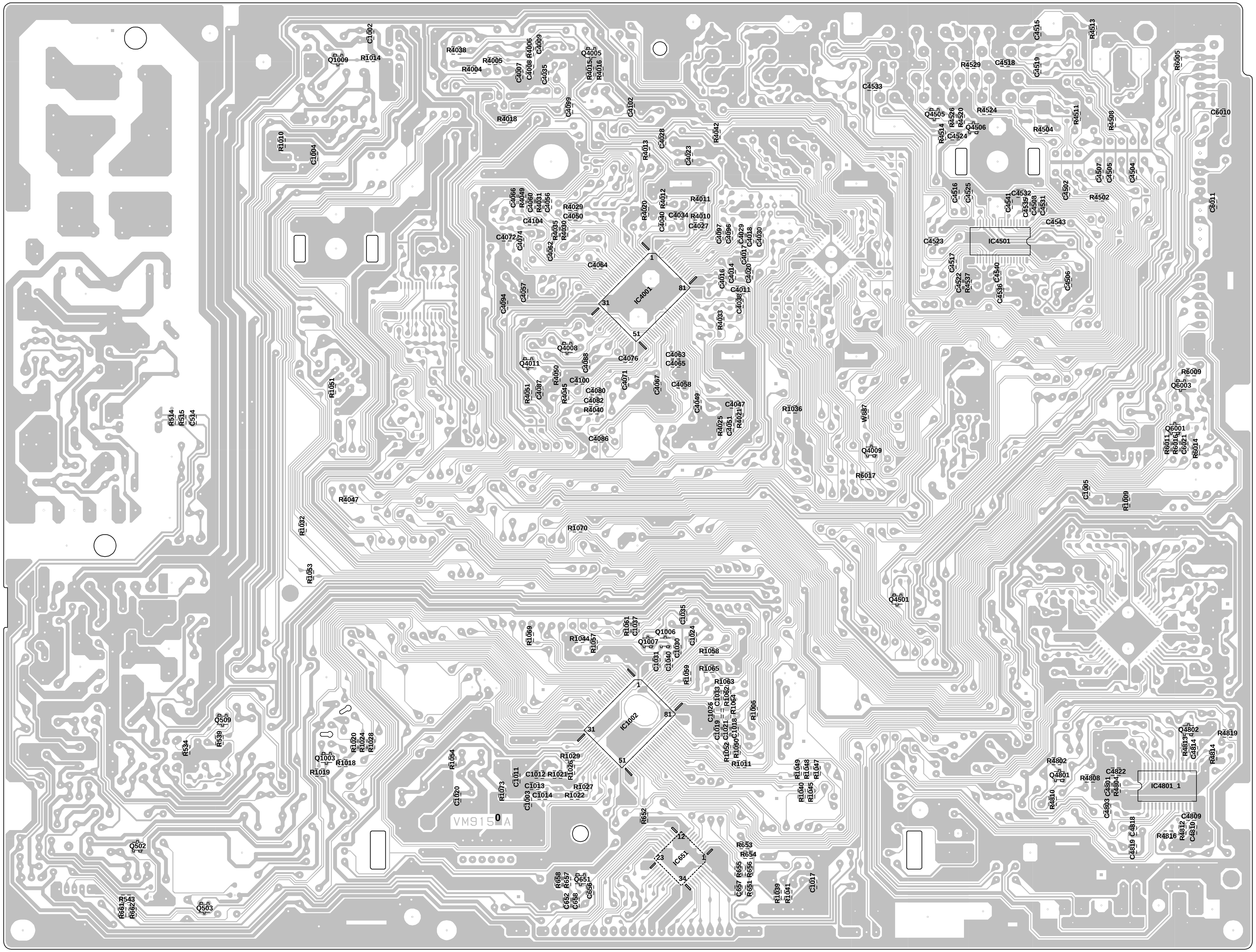
INTERCONNECTION DIAGRAM
(MODEL:HV-GX900K)



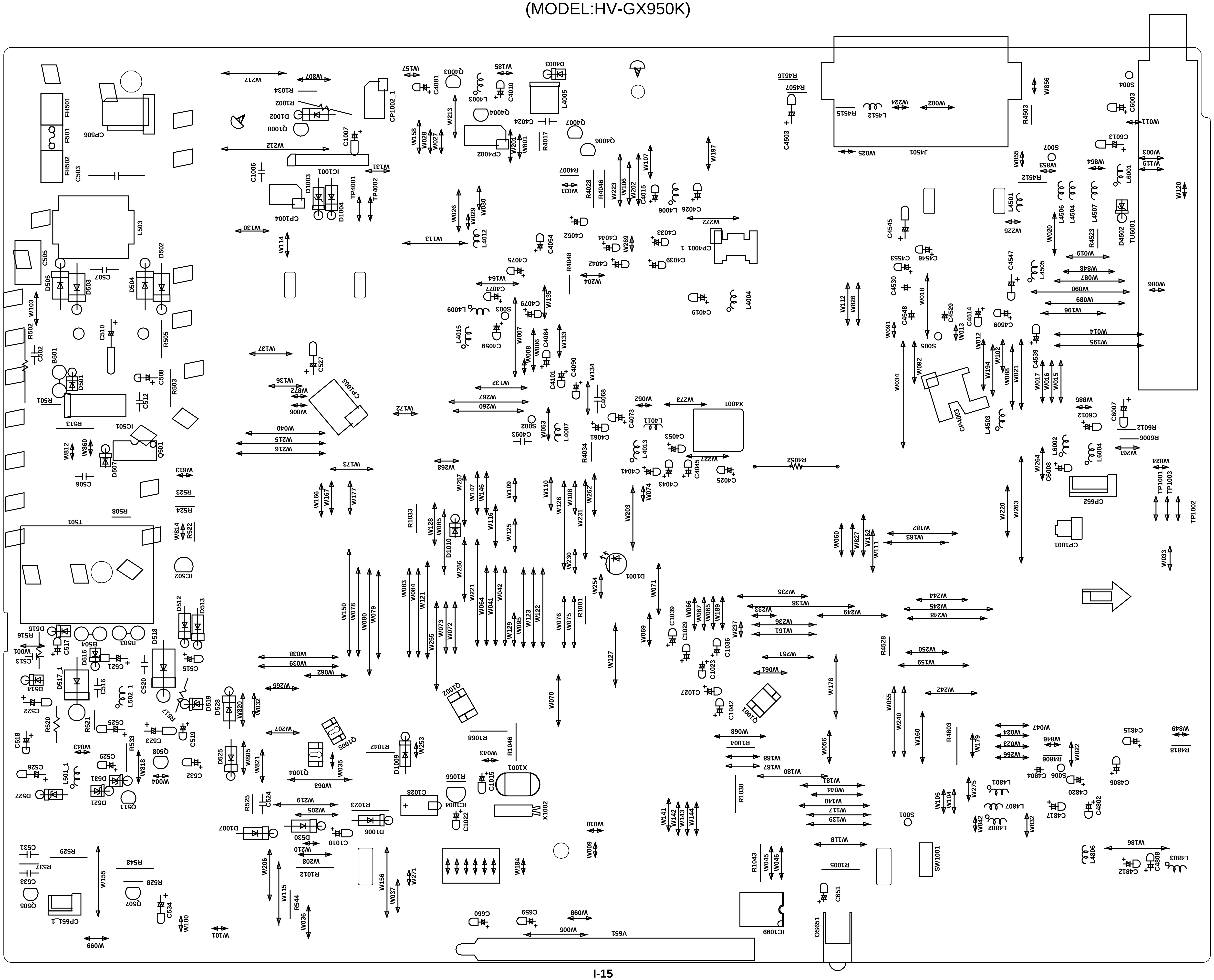
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

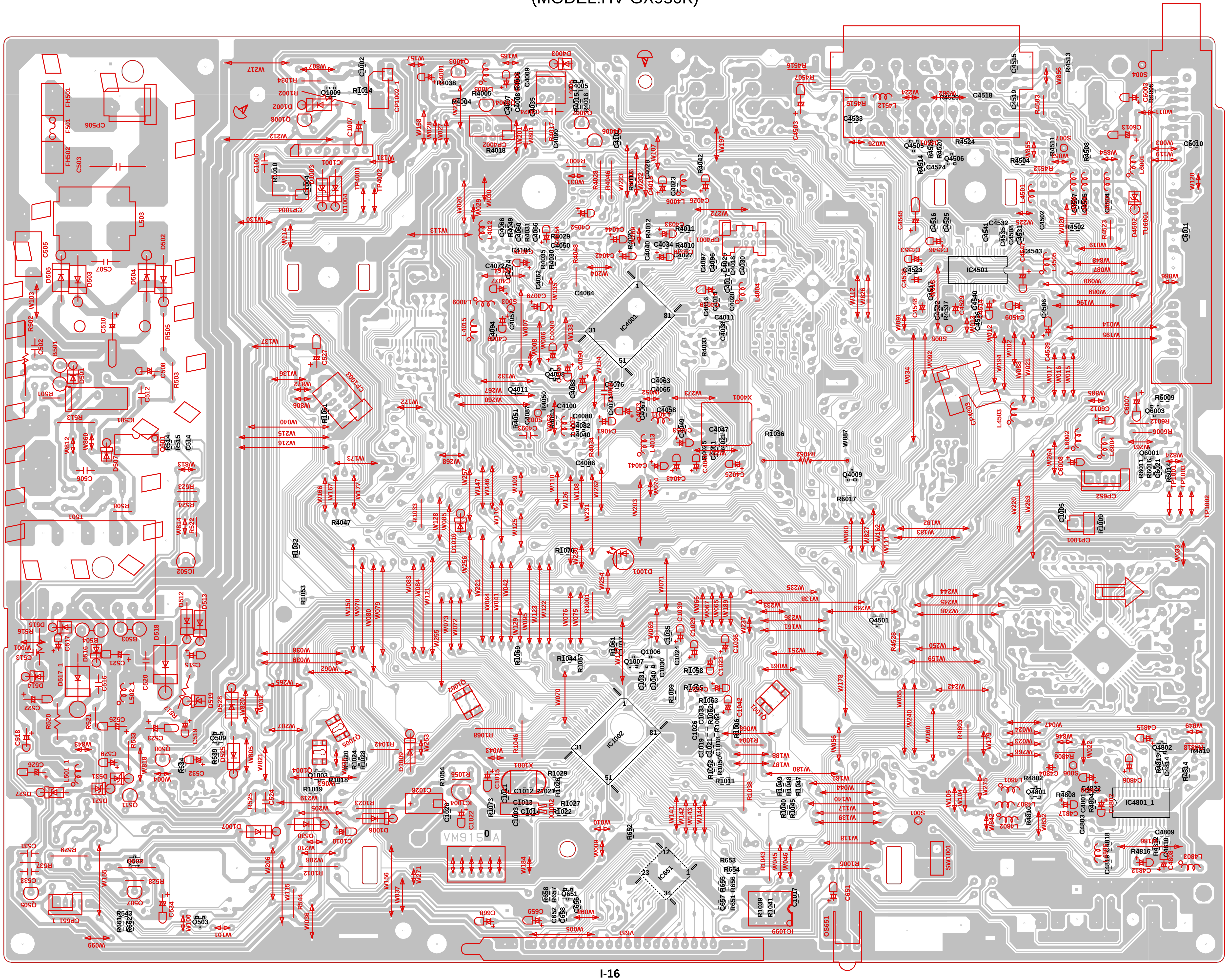
PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX950K)



PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX950K)



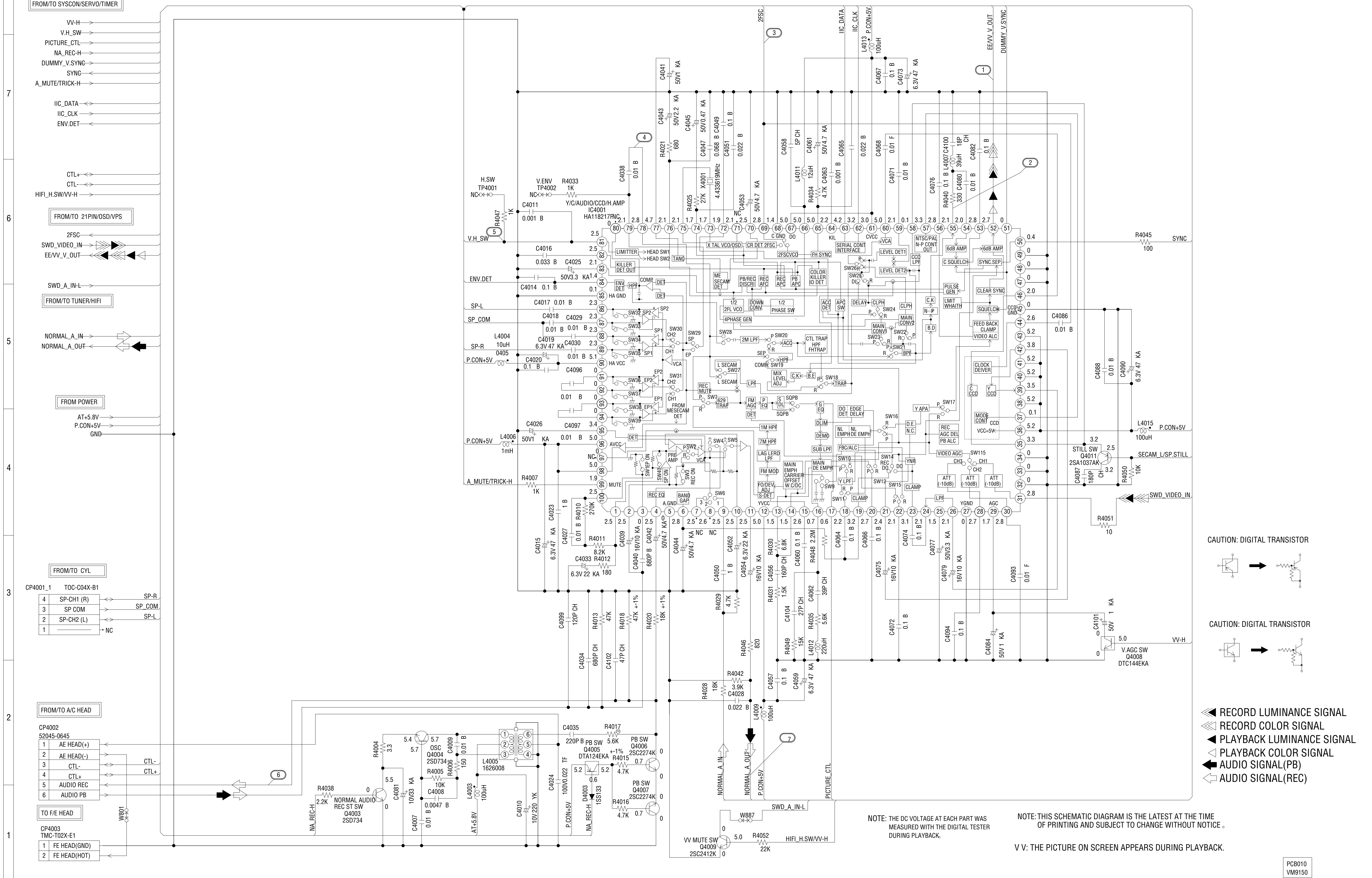
PRINTED CIRCUIT BOARDS
SYSCON
(MODEL:HV-GX950K)



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(MODEL:HV-GX950K)

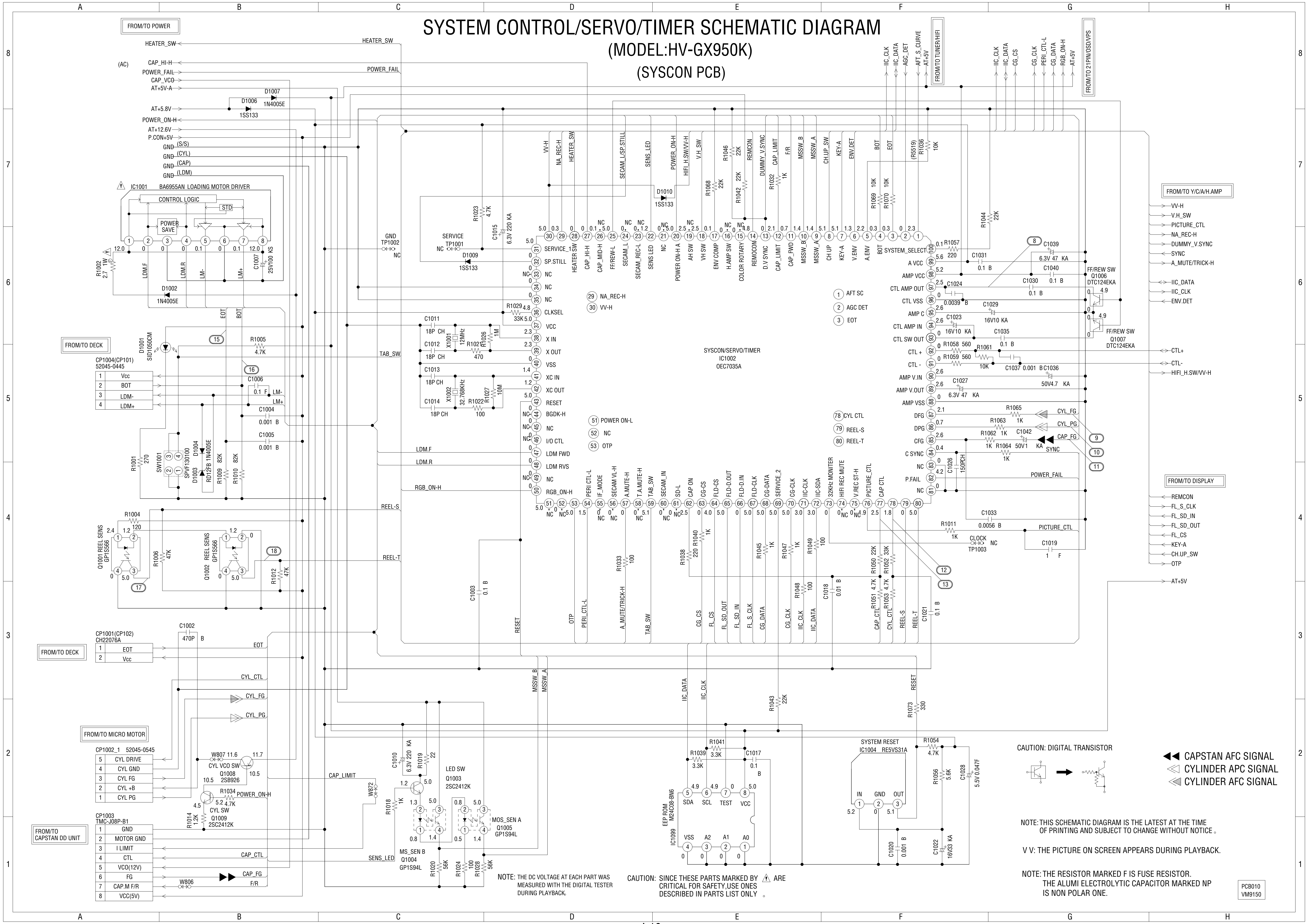
(SYSCON PCB)



SYSTEM CONTROL/SERVO/TIMER SCHEMATIC DIAGRAM

(MODEL:HV-GX950K)

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

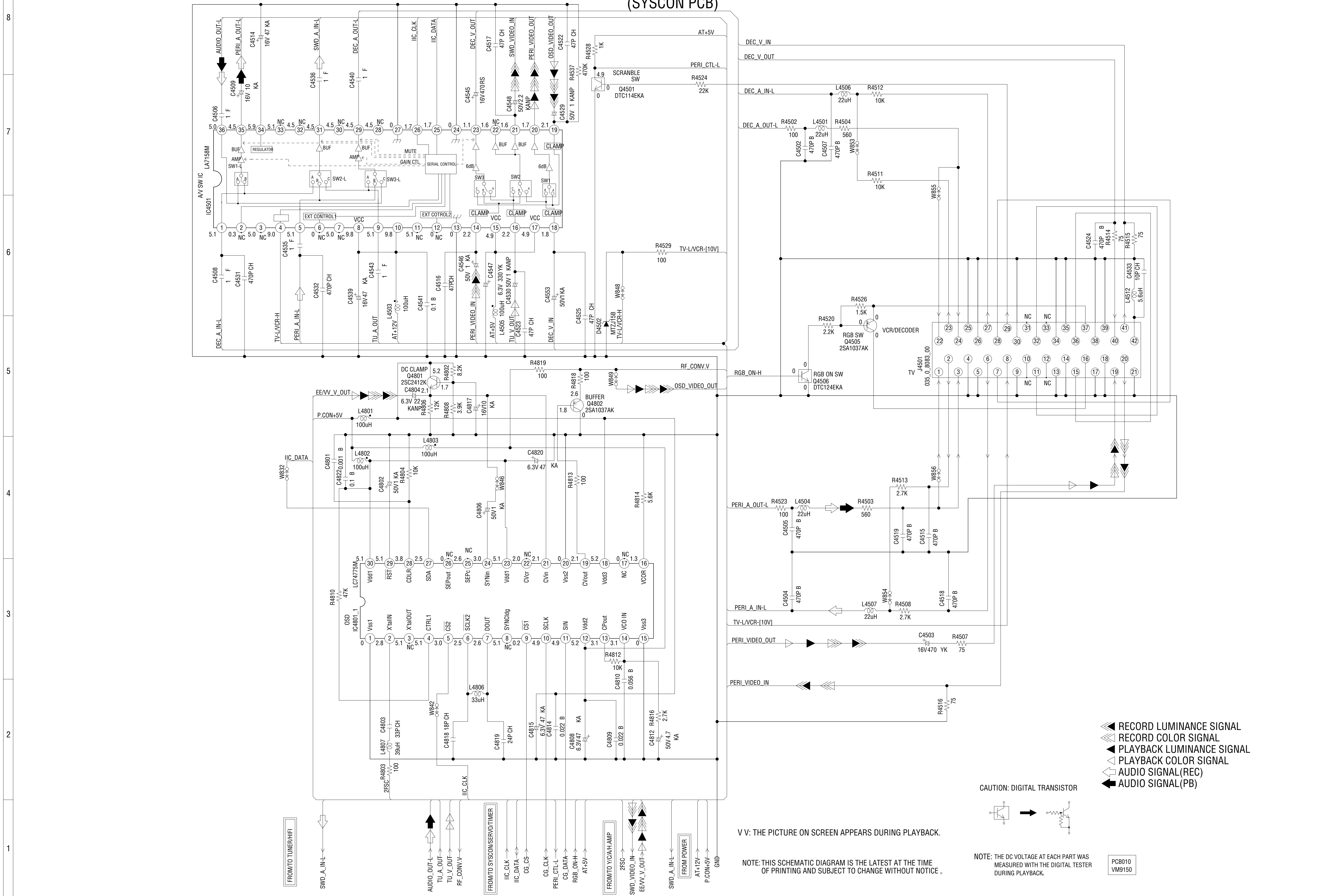
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

V V: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

PCB010
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21PIN/OSD/VPS SCHEMATIC DIAGRAM (MODEL:HV-GX950K)
(SYSCON PCB)



V V: THE PICTURE ON SCREEN APPEARS DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

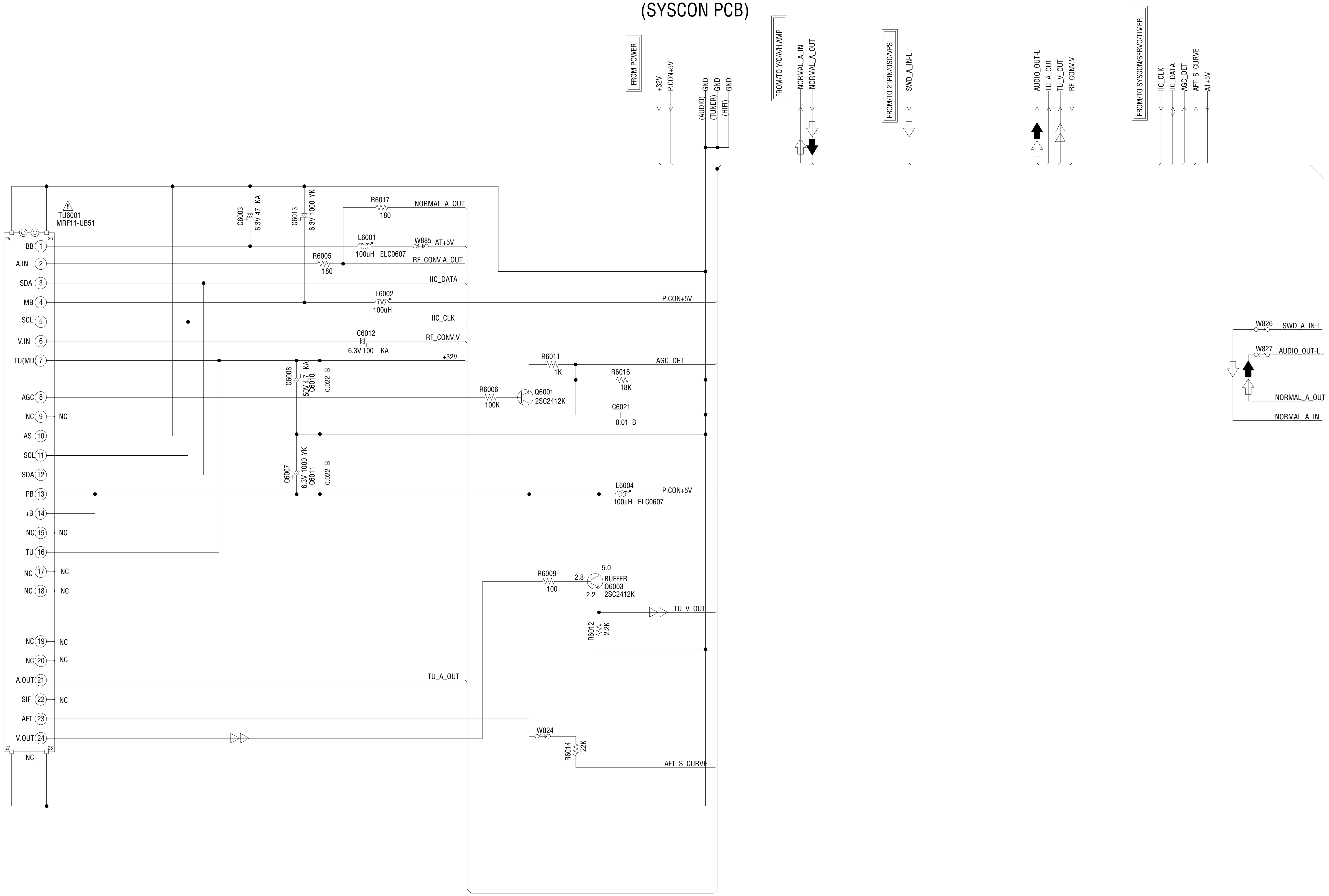
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PCB010
VM9150

TUNER/HIFI SCHEMATIC DIAGRAM

(MODEL:HV-GX950K)

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

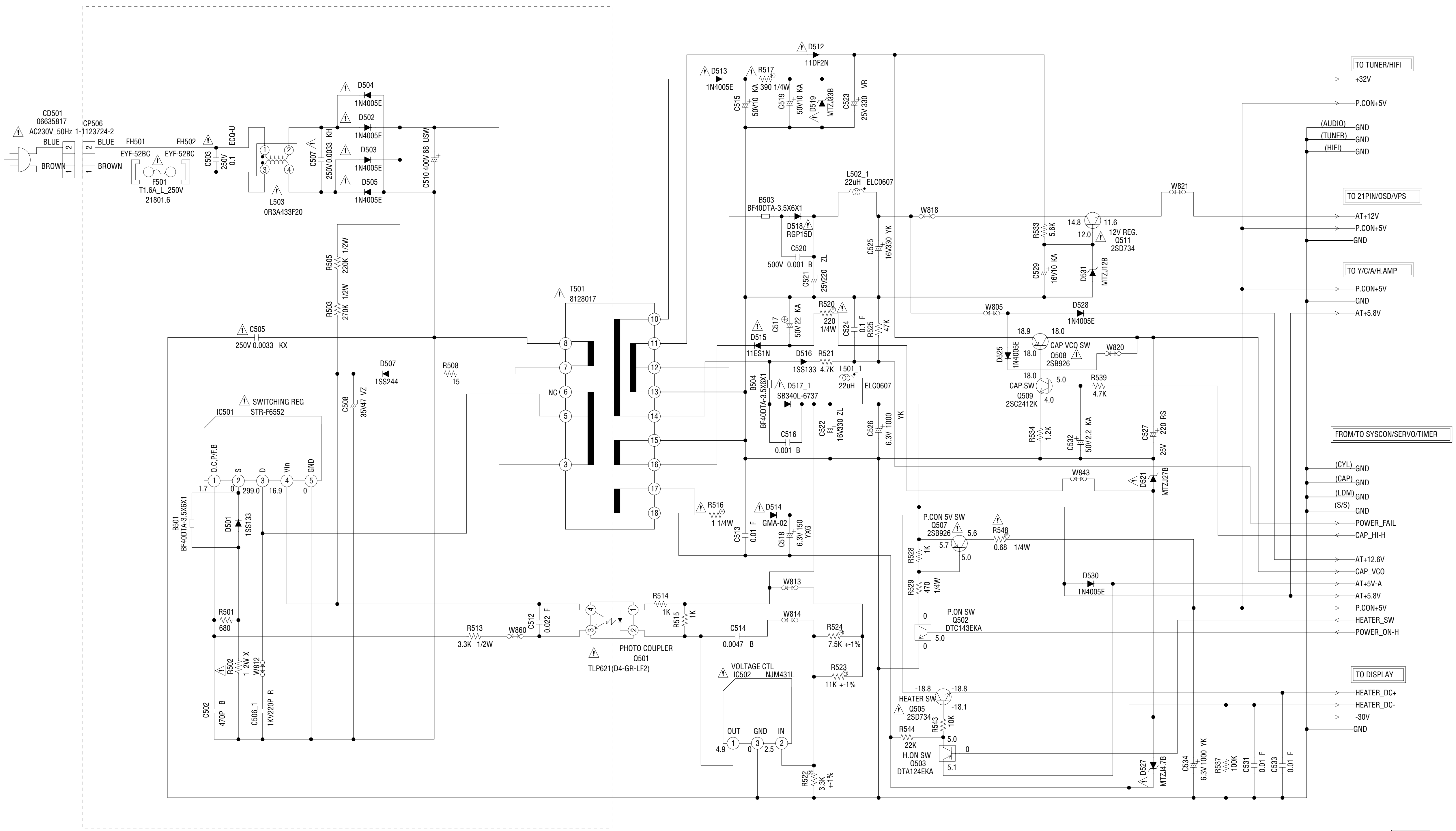
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

TUNER VIDEO SIGNAL
AUDIO SIGNAL(PB)
AUDIO SIGNAL(REC)

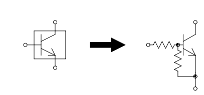
PCB010
VM9150

POWER SCHEMATIC DIAGRAM
(MODEL:HV-GX950K)
(SYSCON PCB)

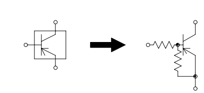


PCB010
VM9150

CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



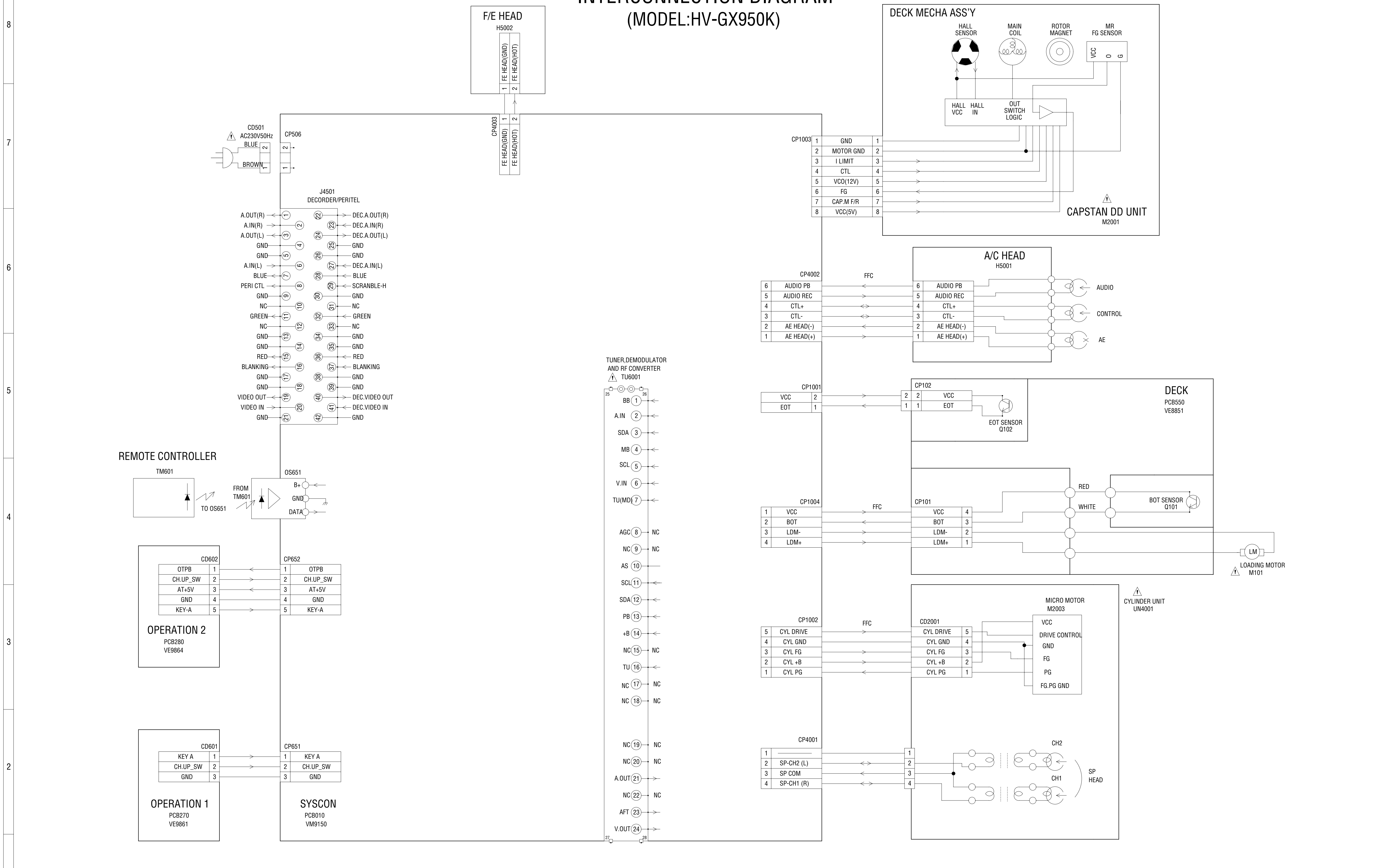
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

INTERCONNECTION DIAGRAM
(MODEL:HV-GX950K)



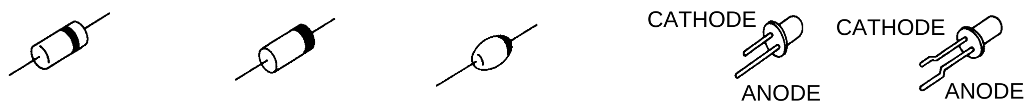
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

SEMICONDUCTOR BASE CONNECTIONS

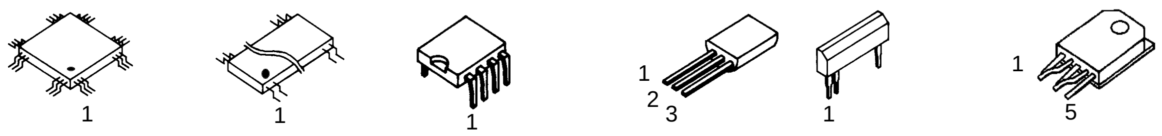
(MODEL:HV-GX900K)

DIODE



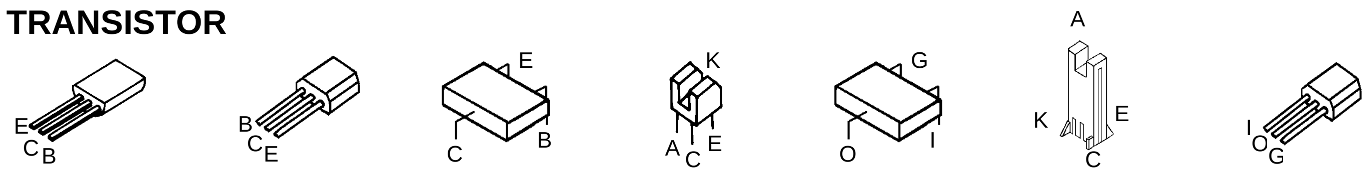
11DF2N-TA2B2	11ES1N-TA1B2	1SS244T-77	SID1050CM	SLZ-345B-02-T1
1SS133T-77	1N4005E-G23			
GMA-02-BT	RD12FB-T7			
MTZJ12B T-77	RU30Z LF014-102			
MTZJ27B T-77	SB340L-6737			
MTZJ33B T-77				
MTZJ4.7B T-77				

IC



44PIN	**24PIN**	**8PIN**	**3PIN**	**8PIN**	**5PIN**
BU2979K	OEC3031A	M24C08-BN6	NJM431L	BA6955AN	STR-F6552
100PIN			RE5VS31A		
HA118217F					
OEC7035A					

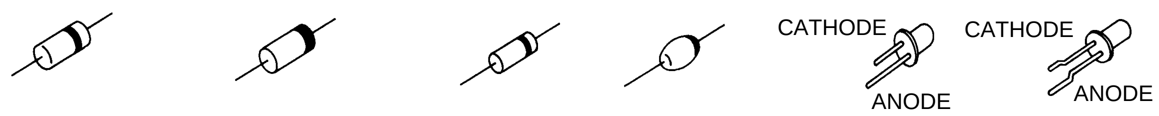
TRANSISTOR



2SB926(S,T)-AA	2SA933STP(R,S)	2SA1037AKT146R,S	GP1S94L	DTA124EKAT146	GP1S566	DTA143ESTP
2SC2274K(E,F)-AA		2SC2412KT146 R,S		DTC124EKAT146		
2SD734(E,F)-AA				DTC143EKAT146		
				DTC144EKAT146		

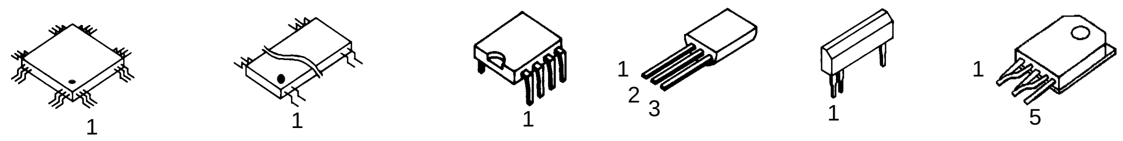
(MODEL:HV-GX950K)

DIODE



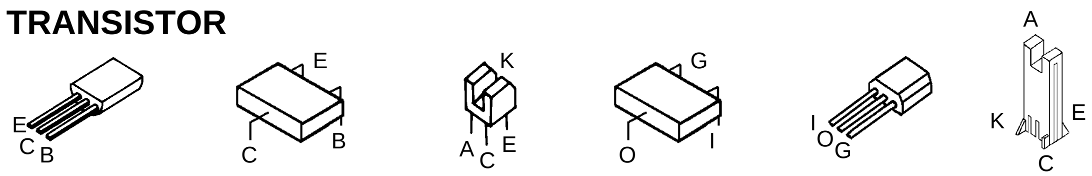
11DF2N-TA2B2	11ES1N-TA1B2	RGP15D-G23	1SS244T-77	SID1050CM	SLZ-345B-02-T1
1SS133T-77	1N4005E-G23				
GMA-02-BT	RD12FB-T7				
MTZJ12B T-77	SB340L-6737				
MTZJ15B T-77					
MTZJ27B T-77					
MTZJ33B T-77					
MTZJ4.7B T-77					

IC



44PIN	**30PIN**	**8PIN**	**3PIN**	**8PIN**	**5PIN**
BU2979K	LC74775M	M24C08-BN6	NJM431L	BA6955AN	STR-F6552
100PIN	**36PIN**		RE5VS31A		
HA118217F	LA7158M				
OEC7035A					

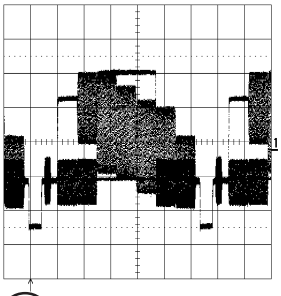
TRANSISTOR



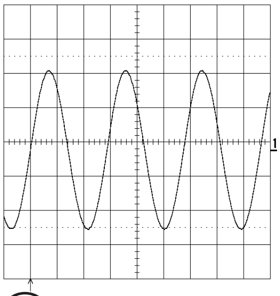
2SB926(S,T)-AA	2SA1037AKT146R,S	GP1S94L	DTA124EKAT146	DTA143ESTP	GP1S566
2SC2274K(E,F)-AA	2SC2412KT146 R,S		DTC114EKAT146		
2SD734(E,F)-AA			DTC124EKAT146		
			DTC143EKAT146		
			DTC144EKAT146		

WAVEFORMS

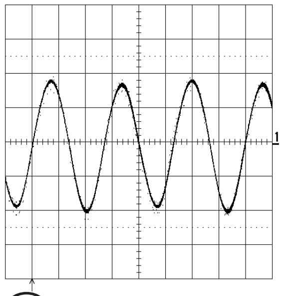
Y/C/AUDIO/HEAD AMP



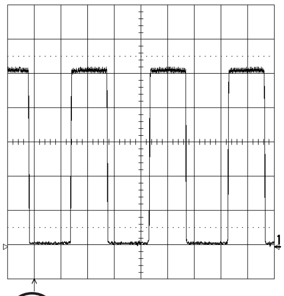
(1) REC
0.5V 10μs/div



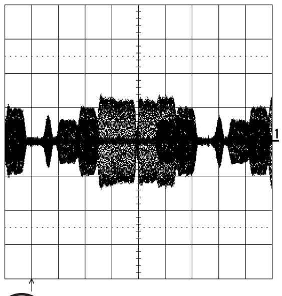
(6) REC
10V 5μs/div



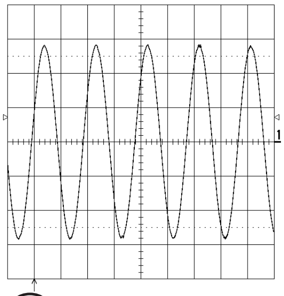
(11) REC, PB
0.5V 0.5ms/div



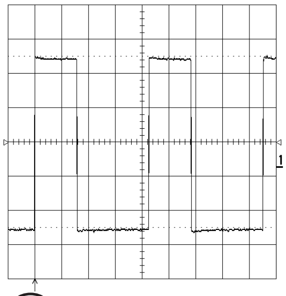
(17) REC, PB
1V 0.5s/div



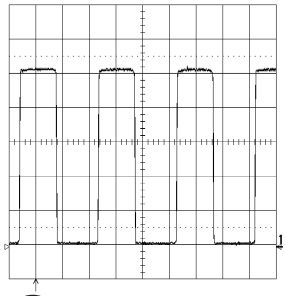
(2) PB
200mV 10μs/div



(7) REC, PB
200mV 0.5ms/div

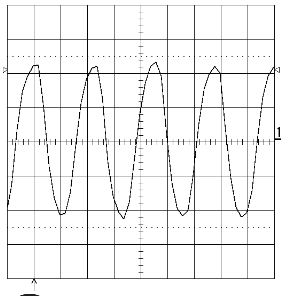


(12) REC, PB
1V 5μs/div

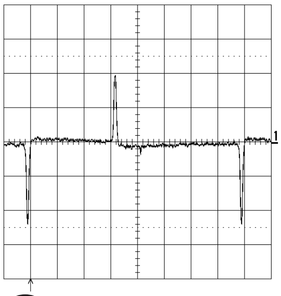


(18) REC, PB
1V 0.5s/div

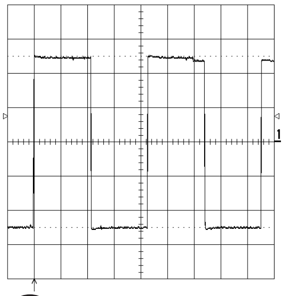
SYSCON/SERVO/TIMER



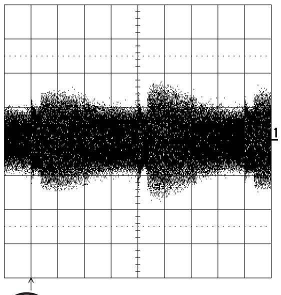
(3) POWER ON
100mV 50ns/div



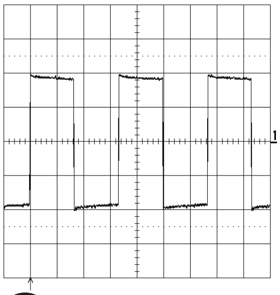
(8) REC, PB
1V 5ms/div



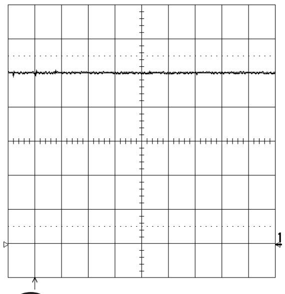
(13) REC, PB
1V 5μs/div



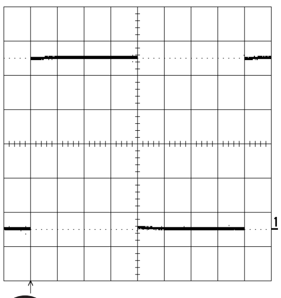
(4) PB
100mV 5ms/div



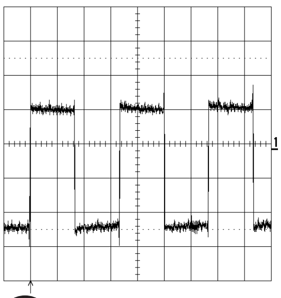
(9) REC, PB
1V 0.5ms/div



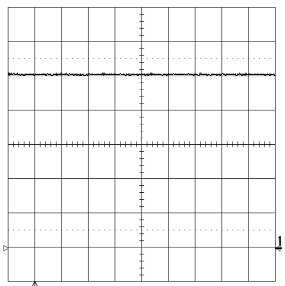
(15) CASS. LESS
1V 10μs/div



(5) REC, PB
1V 5ms/div



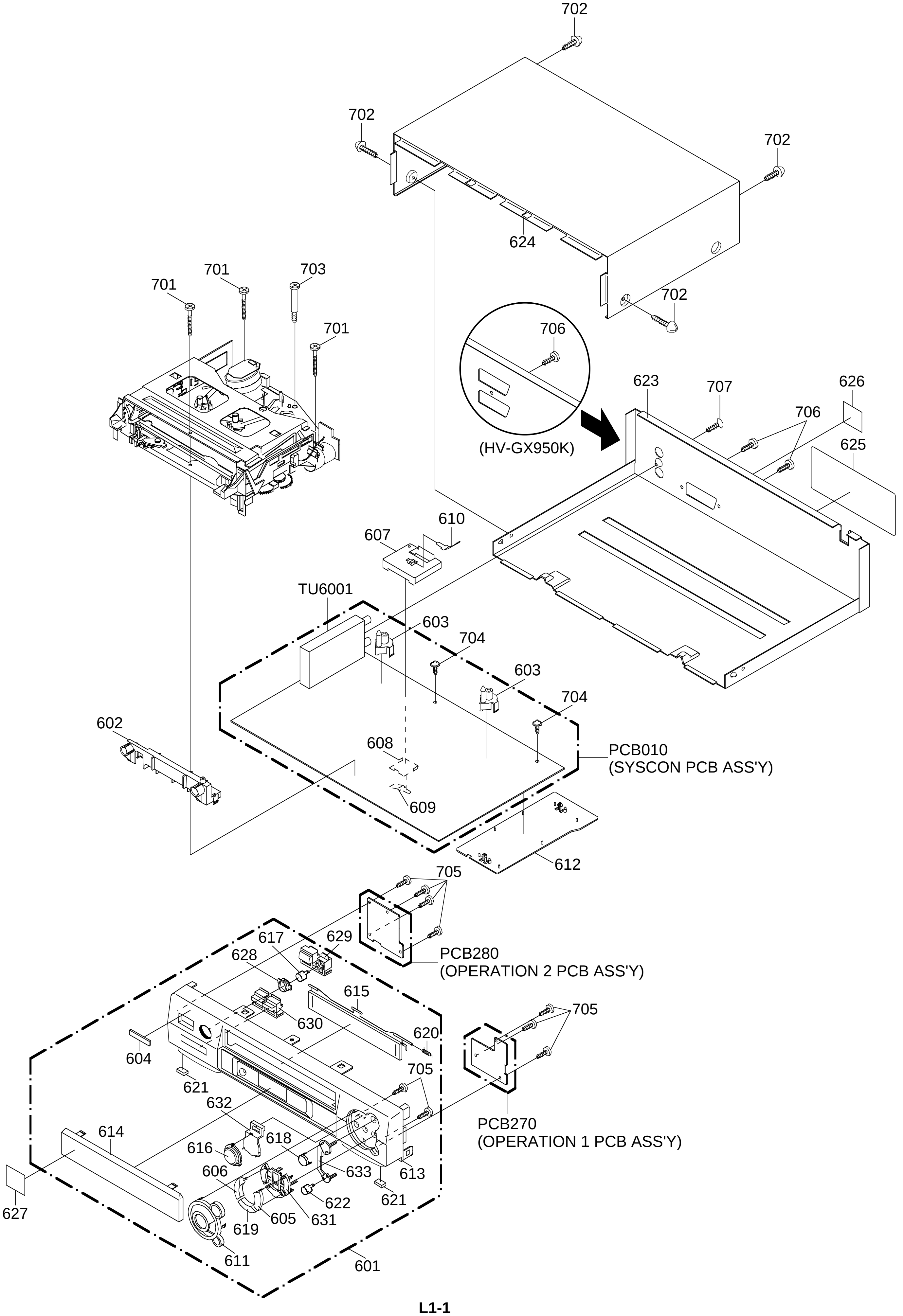
(10) REC, PB
200mV 0.5ms/div



(16) CASS. LESS
1V 10μs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



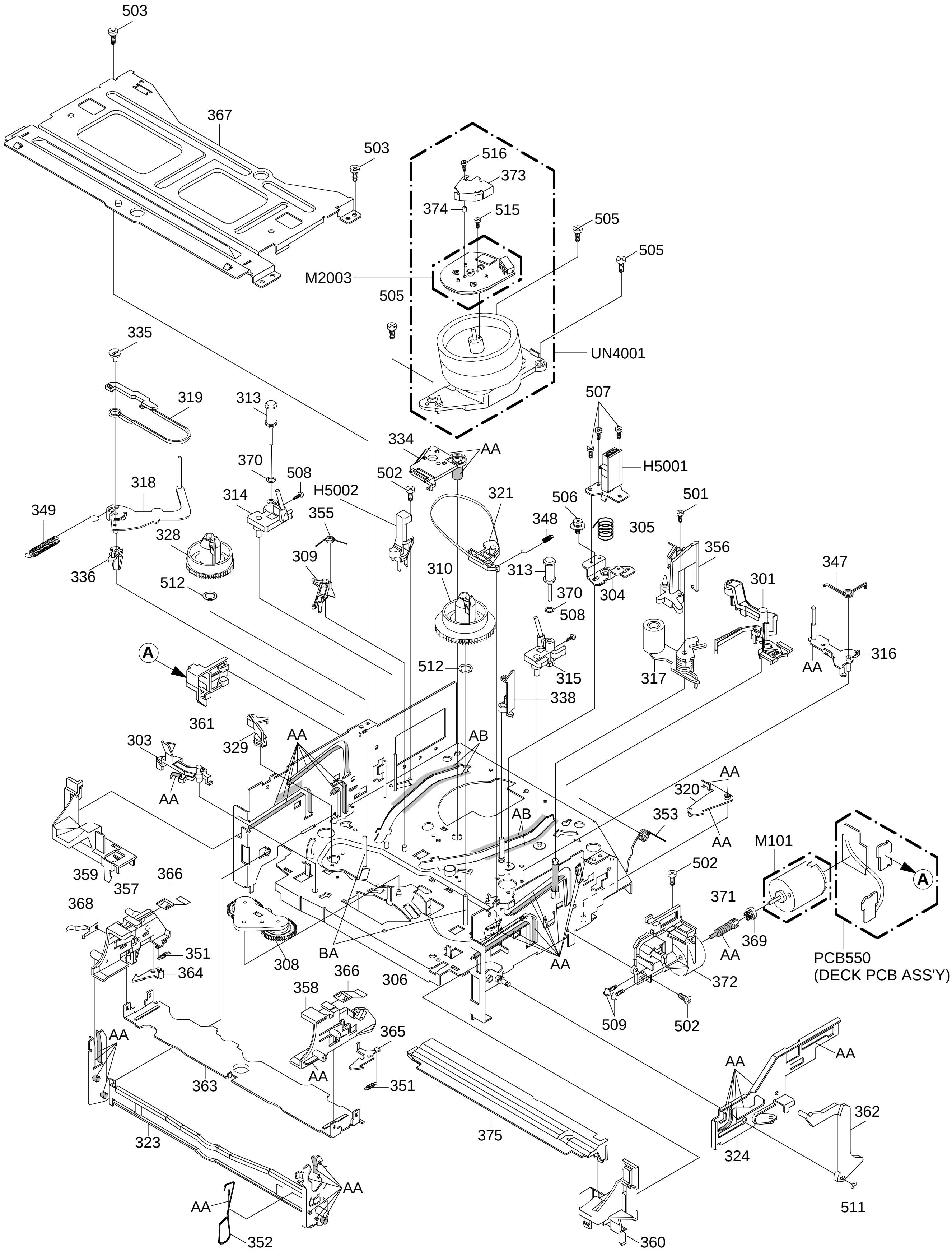
MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
601	S4-D10-5B7-200	CAB,FRONT ASS'Y(HV-GX900K)	1
	S4-D10-6B7-200	CAB,FRONT ASS'Y(HV-GX950K)	1
602	S0-1WP-A03-480	HOLDER,DECK(A)	1
603	S0-4WP-A00-070	HOLDER,DECK(R)	2
604	S2-344-900-130	BADGE,BRAND	1
605	S3-5WP-D06-050	BUTTON,FF	1
606	S3-5WP-D06-060	BUTTON,REW	1
607	-----	SHIELD,CASE HEAD AMP	1
608	-----	SHIELD,COVER HEAD AMP	1
609	-----	SPR,EARTH HEAD AMP	1
610	-----	SPR,EARTH HEAD AMP	1
611	S3-5WP-D06-070	BUTTON,BASE	1
612	S5-5WP-A00-090	PLATE,COVER POWER	1
613	-----	CAB,FRONT(HV-GX900K)	1
	-----	CAB,FRONT(HV-GX950K)	1
614	S1-1WP-D05-350	PLATE,DISPLAY(HV-GX900K)	1
	S1-1WP-D05-360	PLATE,DISPLAY(HV-GX950K)	1
615	S1-2WP-J05-910	FLAP(HV-GX900K)	1
	S1-2WP-J05-920	FLAP(HV-GX950K)	1
616	S3-5WP-D05-650	BUTTON,PLAY(HV-GX900K)	1
	S3-5WP-D05-660	BUTTON,PLAY(HV-GX950K)	1
617	S3-5WP-D06-020	BUTTON,OTPB(HV-GX900K)	1
	S3-5WP-D06-120	BUTTON,OTPB(HV-GX950K)	1
618	S3-5WP-D06-030	BUTTON,REC	1
619	S3-5WP-D06-040	BUTTON,STOP/EJECT	1
620	S4-3WK-A00-320	SPR,FLAP	1
621	S0-0WF-A00-200	CUSHION,LEG	2
622	S3-5WP-D06-080	BUTTON,PAUSE	1
623	-----	PLATE,BOTTOM(HV-GX900K)	1
	-----	PLATE,BOTTOM(HV-GX950K)	1
624	S0-2US-S00-250	CABI,TOP	1
625	-----	SHEET,RATING(HV-GX900K)	1
	-----	SHEET,RATING(HV-GX950K)	1
626	-----	LABEL,ANTI-THEFT	1
627	-----	POP,LABEL	1
628	S3-5WP-D06-090	RING,OTPB	1
629	S3-5WP-D06-250	BUTTON,POWER	1
630	S3-5WP-D06-260	BUTTON,CHANNEL	1
631	S3-8WP-A00-110	HOLDER,BUTTON(1)	1
632	S3-8WP-A00-120	HOLDER,BUTTON(2)	1
633	S3-8WP-A00-130	HOLDER,BUTTON(3)	1
701	S1-071-40B-940	SCREW,TAP(S)V+4-29	3
702	S1-072-408-020	SCREW,TAP BIND 4-8	4
703	87-255-169-410	SCREW,TAP(S)UT2+4-6	1
704	87-641-095-410	SCREW,TAP(S)UT2+3-8	2
705	87-743-074-010	VT2+2.6-8	9
706	87-741-094-410	SCREW,TAP 3-6 BIND(HV-GX900K)	2
	87-741-094-410	SCREW,TAP 3-6 BIND(HV-GX950K)	1
707	S1-072-304-040	UIT+3-4	1

ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S6-CPL-050-170	CABLE,PAL CPL05017	1
2	S7-660-BS0-200	TRANSMITTER	1
3	S4-D10-501-000	INSTRUCTION BOOK(HV-GX900K)	1
	S4-D10-601-000	INSTRUCTION BOOK(HV-GX950K)	1

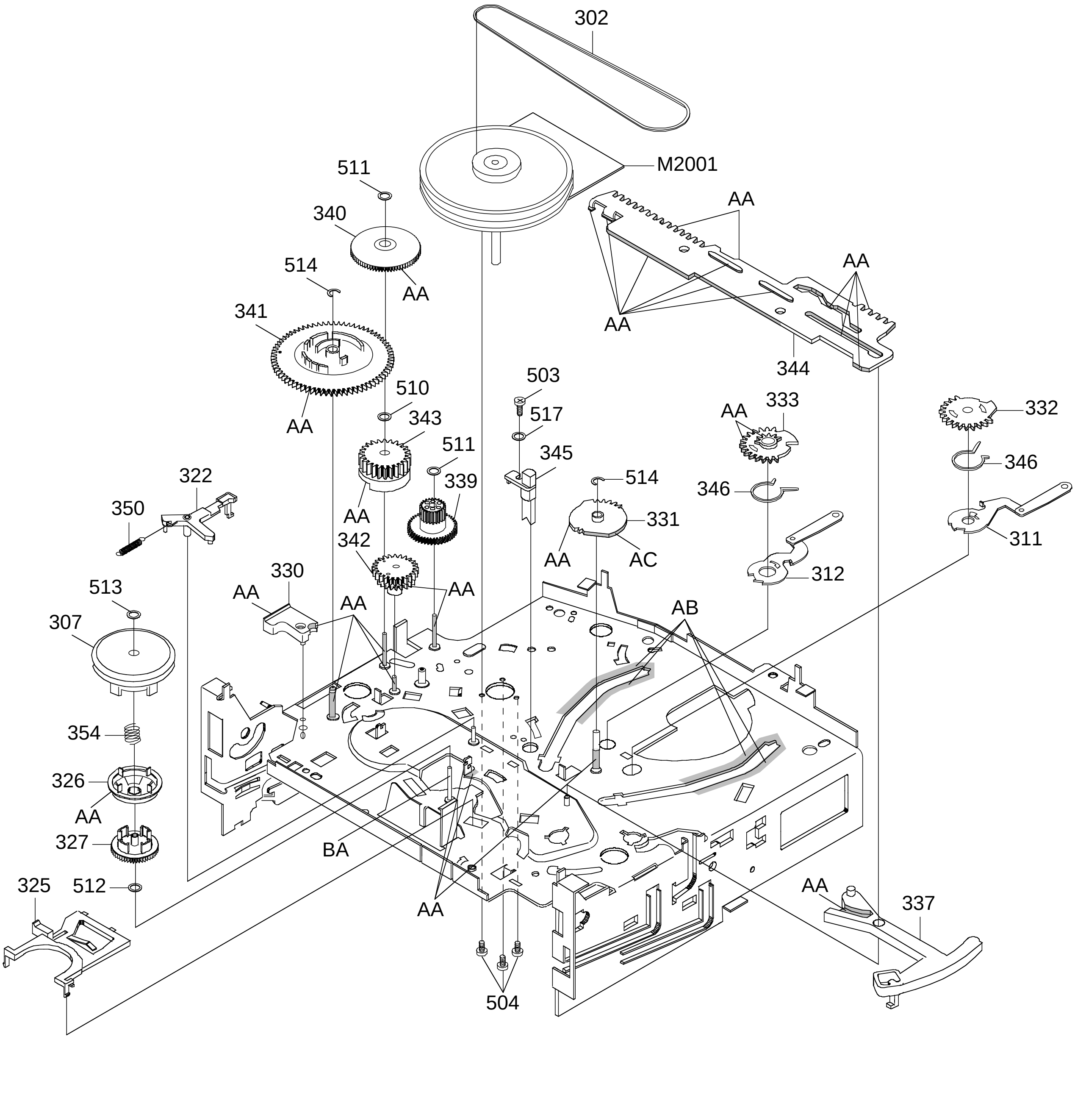
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
OIL	KYODO OIL SLIDAS No. 150	BA

NOTE: Applying positions AA, AB, AC and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
OIL	KYODO OIL SLIDAS No. 150	BA

NOTE: Applying positions AA, AB, AC and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
301	S5-OA5-000-220	AHC ASS'Y	1
302	S5-OP2-002-700	BELT,CAPSTAN	1
303	S5-OP9-006-890	LEVER,REC	1
304	S5-OP5-000-830	BASE,AC HEAD	1
305	S5-OP8-003-240	SPR,AC HEAD	1
306	S5-OA0-002-970	MAIN CHASSIS ASS'Y	1
307	S5-OA2-000-720	CLUTCH ASS'Y	1
308	S5-OA2-000-730	ARM,IDLER ASS'Y	1
309	S5-OP6-005-530	ARM,S-S BRAKE	1
310	S5-OA2-000-760	T REEL ASS'Y	1
311	S5-OA3-000-610	LOAD ARM S ASS'Y	1
312	S5-OA3-000-620	LOAD ARM T ASS'Y	1
313	S5-OA4-001-020	G-ROLLER ASS'Y	2
314	S5-OA4-001-710	BASE,INCL S ASS'Y	1
315	S5-OA4-001-720	BASE,INCL T ASS'Y	1
316	S5-OA4-001-850	P5-2 ARM ASS'Y	1
317	S5-OA4-001-740	PINCH ROLLER BLOCK	1
318	S5-OA4-001-750	TENSION ARM ASS'Y	1
319	S5-OA4-001-760	TENSION BAND ASS'Y	1
320	S5-OA4-001-780	PINCH ROLLER LEVER ASS'Y	1
321	S5-OA6-001-820	BRAKE T ASS'Y	1
322	S5-OA6-001-830	CAP BRAKE ARM ASS'Y	1
323	S5-OA9-002-130	LINK ASS'Y	1
324	S5-OA9-002-160	LINK LEVER ASS'Y	1
325	S5-OP2-002-610	LEVER,CLUTCH	1
326	S5-OP2-002-620	RING,CLUTCH	1
327	S5-OP2-002-630	GEAR,CLUTCH	1
328	S5-OP2-002-710	REEL,S	1
329	S5-OP2-002-730	STOPPER,REEL S	1
330	S5-OP2-002-740	SPACER,LINK LEVER	1
331	S5-OP3-001-780	GEAR,MAIN LOADING	1
332	S5-OP3-001-790	GEAR,LOADING S	1
333	S5-OP3-001-800	GEAR,LOADING T	1
334	S5-OP3-001-850	HOLDER,LOADING GEAR	1
335	S5-OP4-004-720	ADJUST,TENSION	1
336	S5-OP4-004-730	HOLDER,TENSION	1
337	S5-OP4-004-740	LEVER,TENSION	1
338	S5-OP4-004-750	COVER,P4	1
339	S5-OP6-005-430	GEAR,JOINT	1
340	S5-OP6-005-440	GEAR,MIDDLE	1
341	S5-OP6-005-450	CAM,MAIN	1
342	S5-OP6-005-460	CAM,P5	1
343	S5-OP6-005-470	CAM,PINCH ROLLER	1
344	S5-OP6-005-480	ROD,MAIN	1
345	S5-OP7-000-350	REFLECTOR,LED	1
346	S5-OP8-003-180	SPR,LOADING GEAR	2
347	S5-OP8-003-190	SPR,P5	1
348	S5-OP8-003-210	SPR,BRAKE T	1
349	S5-OP8-003-220	SPR,TENSION	1
350	S5-OP8-003-230	SPR,CAP BRAKE	1
351	S5-OP8-003-250	SPR,LOCKER	2
352	S5-OP8-003-260	SPR,LINK	1
353	S5-OP8-003-280	SPR,DAMPER	1
354	S5-OP8-003-300	SPR,RING	1
355	S5-OP8-003-320	SPR,S-S BRAKE	1
356	S5-OP9-006-800	OPENER,CASS	1
357	S5-OP9-006-830	CASS SIDE L	1
358	S5-OP9-006-840	CASS SIDE R	1
359	S5-OP9-007-020	TAPE GUIDE L(P,R)	1
360	S5-OP9-006-860	TAPE GUIDE R	1
361	S5-OP9-006-870	COVER,SENSOR L	1
362	S5-OP9-006-880	LEVER,FLAP	1
363	S5-OP9-006-900	CASS HOLDER	1
364	S5-OP9-006-910	LOCKER,L	1
365	S5-OP9-006-920	LOCKER,R	1
366	S5-OP9-006-940	SPR,PACK	2
367	S5-OP9-006-950	BRACKET,TOP	1
368	-----	SPR,CASS EARTH	1
369	S5-OP6-005-400	DRIVER,WORM	1
370	S5-OP4-004-850	O-RING	2
371	S5-OP6-005-410	WORM	1
372	S5-OP6-005-420	BRACKET,MOTOR	1
373	-----	SHIELD,DRUM MOTOR3	1
374	S5-OPA-A03-330	COLLAR SHIELD	1
375	S5-OP0-004-670	COVER,DECK	1
501	87-654-075-410	SCREW,TAP 2.6-10	1
502	S1-072-268-040	VT2+2.6-8	3
503	87-743-073-010	VT2+2.6-6	3
504	87-743-073-410	SCREW,TAP 2.6-6	3
505	S1-0A1-268-040	SCREW,WASHER(A)M2.6-8	3
506	S1-0B1-264-040	SCREW,WASHER(B)M2.6-4	1
507	87-261-035-410	SCREW,PAN M2-6	3
508	87-261-032-410	SCREW,PAN M2-3	2
509	87-258-091-010	U+M3-3	2
510	S2-Q31-54C-5N0	PW,3.1-5.4-0.25	1
511	S2-P26-600-5N0	PW(CUT)2.6-6-0.5	3
512	S2-Q26-471-3N0	PW 2.6-4.7-0.13	3
513	S2-P18-450-5N0	PW(CUT)1.8-4.5-0.5	1
514	S3-ETW-300-000	E-RING 3	2
515	S1-0A1-235-040	SEMS A M2.3-5	1
516	S1-0A1-23A-040	SCREW,WASHER(A)M2.3-10	1
517	S2-A26-750-510	WASHER,2.6-7.5-T0.5	1
CP101	-----	CONN,PWB SIDE	1
CP102	-----	CONN,PWB SIDE 173979-2	1
H5001	S5-23D-910-340	HEAD,AC	1
H5002	S5-43D-020-130	HEAD,FE	1
⚠ M101	S5-96P-780-010	MOTOR(LOADING)	1
⚠ M2001	S5-94J-980-060	CAPSTAN DD UNIT	1
M2003	S5-89V-110-060	MICRO MOTOR	1
PCB550	-----	DECK PCB ASS'Y	1
Q101	S0-007-003-200	PHOTO,TR RPT-38PB113	1
Q102	S0-007-003-200	PHOTO,TR RPT-38PB113	1
⚠ UN4001	S4-D10-5B5-000	CYLINDER UNIT ASS'Y	1

ELECTRICAL REPLACEMENT PARTS LIST

SYSCON PCB ASS'Y

*** RESISTORS ***

	REF.NO.	PART NO.	DESCRIPTION
⚠	R502	S3-118-A01-0J0	RES,M 1-2W
⚠	R516	87-029-174-090	RES,FUSE 1-1/4W
⚠	R517	S6-15U-439-1J0	RES,FUSE 390-1/4W
⚠	R520	87-029-109-010	RES,FUSE 220-1/4W
	R522	87-025-422-080	RES,M 3.3K-1/6W
	R523	S4-25T-611-3F0	RES,M 11K-1/6W
	R524	S4-25T-675-2F0	RES,M 7.5K-1/6W
⚠	R548	S6-358-4R6-8K0	RES,FUSE 0.68-1/4W
⚠	R1002	S6-150-12R-7J0	RES,FUSE 2.7-1W
	R4017	87-025-431-010	RES,M 5.6K-1/6W

*** CAPACITORS ***

	REF.NO.	PART NO.	DESCRIPTION
⚠	C505	SB-393-0ML-3M0	CAP,CER 0.0033-250V
	C506	S0-3T0-R6H-2K0	CAP,CER 220PF-1KV
⚠	C507	SB-3LE-0ML-3M0	CAP,CER 0.0033-250V
	C508	87-010-246-010	CAP,E 47-35V V
	C510	S0-2TF-H68-0M0	CAP,E 68-400V
	C515	87-010-560-080	CAP,E 10-50V
	C517	87-010-444-080	CAP,E 22UF-50V
	C518	S6-2AT-015-1M0	CAP,E 15OUF-6.3V
	C519	87-010-560-080	CAP,E 10-50V
	C521	87-010-385-040	CAP,E 220-25V
	C522	87-010-980-010	CAP,E 330-16V
	C523	87-010-368-010	CAP,E 330UF-25V
	C525	87-010-685-080	CAP,E 330-16V
	C526	87-010-550-080	CAP,E 1000-6.3V
	C527	87-010-385-040	CAP,E 220UF-25V
	C529	87-015-075-040	CAP,E 10-16V
	C532	87-010-402-080	CAP,E 2.2-50V
	C534	87-010-550-080	CAP,E 1000-6.3V
	C651	87-015-677-010	CAP,E 100-6.3
	C659	87-010-549-010	CAP,E 47-6.3V
	C660	87-010-560-080	CAP,E 10-50V
	C1002	SS-0KB-04Q-2K0	CAP,470PF-50V
	C1007	87-010-247-040	CAP,E 100UF-25V
	C1010	87-016-088-040	CAP,E 220-6.3V
	C1015	87-016-088-040	CAP,E 220-6.3V
	C1022	87-015-683-080	CAP,E 33-16V
	C1023	87-015-075-040	CAP,E 10-16V
	C1027	87-010-549-010	CAP,E 47-6.3V
	C1028	87-010-782-010	CAP,E 0.047F-5.5V
	C1029	87-015-075-040	CAP,E 10-16V
	C1036	87-010-404-080	CAP,E 4.7-50V
	C1039	87-010-549-010	CAP,E 47-6.3V
	C1042	87-015-695-080	CAP,E 1-50V
	C4010	87-A10-189-040	CAP,E 220UF-10V
	C4015	87-010-549-010	CAP,E 47-6.3V
	C4019	87-010-549-010	CAP,E 47-6.3V
	C4024	87-014-185-010	CAP,MPL 0.022-100V
	C4025	87-010-403-080	CAP,E 3.3-50V
	C4026	87-015-695-080	CAP,E 1-50V
	C4033	87-010-076-070	CAP,E 22UF-6.3V
	C4039	87-015-075-040	CAP,E 10-16V
	C4041	87-015-695-080	CAP,E 1-50V
	C4042	87-010-404-080	CAP,E 4.7-50V
	C4043	87-010-402-080	CAP,E 2.2-50V
	C4044	87-010-404-080	CAP,E 4.7-50V
	C4045	87-010-400-080	CAP,E 0.47-50V
	C4052	87-010-076-070	CAP,E 22UF-6.3V
	C4053	87-010-404-080	CAP,E 4.7-50V
	C4054	87-015-075-040	CAP,E 10-16V
	C4059	87-010-549-010	CAP,E 47-6.3V
	C4061	87-010-404-080	CAP,E 4.7-50V
	C4073	87-010-549-010	CAP,E 47-6.3V

*** CAPACITORS ***

	REF.NO.	PART NO.	DESCRIPTION
	C4075	87-015-075-040	CAP,E 10-16V
	C4077	87-010-403-080	CAP,E 3.3-50V
	C4079	87-015-075-040	CAP,E 10-16V
	C4081	87-010-551-010	CAP,E 33UF-10V
	C4084	87-015-695-080	CAP,E 1-50V
	C4090	87-010-549-010	CAP,E 47-6.3V
	C4101	87-015-695-080	CAP,E 1-50V
	C4503	87-010-235-080	CAP,E 470-16V
	C4509	87-010-498-010	CAP,E 10-16 V(HV-GX950K)
	C4514	87-015-864-080	CAP,E 47-16 V(HV-GX950K)
	C4529	87-015-695-080	CAP,E 1-50 V(HV-GX950K)
	C4530	87-015-695-080	CAP,E 1-50 V(HV-GX950K)
	C4534	87-010-402-080	CAP,E 2.2-50V(HV-GX900K)
	C4539	87-015-864-080	CAP,E 47-16 V(HV-GX950K)
	C4545	87-016-577-090	CAP,E 470-16V(HV-GX950K)
	C4546	87-015-695-080	CAP,E 1-50 V(HV-GX950K)
	C4547	87-010-807-010	CAP,E 330-6.3V(HV-GX950K)
	C4548	87-015-696-080	CAP,E 2.2-50 V(HV-GX950K)
	C4553	87-015-695-080	CAP,E 1-50 V(HV-GX950K)
	C4802	87-015-695-080	CAP,E 1-50V
	C4804	87-010-076-070	CAP,E 22UF-6.3V
	C4806	87-015-695-080	CAP,E 1-50V
	C4808	87-010-549-010	CAP,E 47-6.3V
	C4812	87-015-698-080	CAP,E 4.7-50 V(HV-GX950K)
	C4815	87-010-078-080	CAP,E 47-6.3V(HV-GX950K)
	C4817	87-015-075-040	CAP,E 10-16V
	C4820	87-010-549-010	CAP,E 47-6.3V
	C6003	87-010-549-010	CAP,E 47-6.3V
	C6007	87-010-550-080	CAP,E 1000-6.3V
	C6008	87-010-404-080	CAP,E 4.7-50V
	C6012	87-015-677-010	CAP,E 100-6.3
	C6013	87-010-550-080	CAP,E 1000-6.3V

*** DIODES ***

	REF.NO.	PART NO.	DESCRIPTION
	D501	87-020-465-010	DIODE,1SS133T
⚠	D502	S2-LXE-658-000	DIODE,1N4005E-G23
⚠	D503	S2-LXE-658-000	DIODE,1N4005E-G23
⚠	D504	S2-LXE-658-000	DIODE,1N4005E-G23
⚠	D505	S2-LXE-658-000	DIODE,1N4005E-G23
	D507	87-A40-488-080	DIODE,1SS244T
⚠	D512	S2-8T1-1DF-200	DIODE,11DF2N-TA2B2
⚠	D513	S2-LXE-658-000	DIODE,1N4005E-G23
⚠	D514	S1-3TG-MA0-200	DIODE,GMA-02-BT
⚠	D515	S2-8T1-1ES-N10	DIODE,11ES1N-TA1B2
	D516	87-020-465-010	DIODE,1SS133T
⚠	D517	S2-LKB-340-L00	DIODE,SB340L-6737
⚠	D518	S2-BKR-U30-Z00	DIODE,RU30Z LF014(HV-GX900K)
		S2-3TG-P15-D00	DIODE,RGP15D-G23(HV-GX950K)
⚠	D519	87-002-743-080	ZENER,MTZJ33B T77
⚠	D521	87-A40-499-080	ZENER,MTZJ27BT-77
	D525	S2-LXE-658-000	DIODE,1N4005E-G23
⚠	D527	S9-7U0-4R7-1B0	ZENER,MTZJ4.7B
	D528	S2-LXE-658-000	DIODE,1N4005E-G23
	D530	S2-LXE-658-000	DIODE,1N4005E-G23
	D531	S9-7U0-120-1B0	ZENER,MTZJ12B T-77
	D1001	S0-106-000-600	LED,SID1050CM
	D1002	S2-LXE-658-000	DIODE,1N4005E-G23
	D1003	S9-2T1-120-B00	ZENER,RD12FB-T7
	D1004	S2-LXE-658-000	DIODE,1N4005E-G23
	D1006	87-020-465-010	DIODE,1SS133T
	D1007	S2-LXE-658-000	DIODE,1N4005E-G23
	D1009	87-020-465-010	DIODE,1SS133T
	D1010	87-020-465-010	DIODE,1SS133T
	D4003	87-020-465-010	DIODE,1SS133T
	D4502	S9-7U0-150-1B0	ZENER,MTZJ15B(HV-GX950K)

ELECTRICAL REPLACEMENT PARTS LIST

*** ICS ***

REF.NO.	PART NO.	DESCRIPTION
⚠ IC501	87-A21-186-010	IC,STR-F6552
⚠ IC502	S0-Q90-431-L00	IC,NJM431L
IC651	S0-7F5-297-900	IC,BU2979K
⚠ IC1001	S0-7SQ-955-AN0	IC,BA6955AN
IC1002	S5-6F5-703-5A0	IC,OEC7035A
IC1004	SE-1J0-S31-AH0	IC,RE5VS31A
IC1099	S4-D10-5B0-150	IC,M24C08-BN6
IC4001	87-A21-196-010	IC,HA118217F
IC4501	S0-3F0-715-800	IC,LA7158M(HV-GX950K)
IC4801	S5-3F3-031-A00	IC,OEC3031A(HV-GX900K)
	S5-3F4-775-M00	IC,LC74775M(HV-GX950K)

*** TRANSISTORS ***

REF.NO.	PART NO.	DESCRIPTION
⚠ Q501	S0-025-005-600	PHOTO COUPLER
Q502	87-026-287-080	TR,DTC143EKAT146
Q503	87-026-228-080	TR,DTA124EK
⚠ Q505	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
⚠ Q507	SB-WT0-092-600	TR,2SB926(S,T)
⚠ Q508	SB-WT0-092-600	TR,2SB926(S,T)
Q509	89-324-122-080	TR,2SC2412KT
⚠ Q511	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q651	89-324-122-080	TR,2SC2412KT
Q1001	8Z-JU1-603-010	PHOTO,COUPLER GP1S566
Q1002	8Z-JU1-603-010	PHOTO,COUPLER GP1S566
Q1003	89-324-122-080	TR,2SC2412KT
Q1004	S0-02G-004-900	PHOTO,COUPLER GP1S94L
Q1005	S0-02G-004-900	PHOTO,COUPLER GP1S94L
Q1006	87-026-236-080	TR,DTC124EK
Q1007	87-026-236-080	TR,DTC124EK
Q1008	SB-WT0-092-600	TR,2SB926(S,T)
Q1009	89-324-122-080	TR,2SC2412KT
Q4003	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q4004	SD-3T0-073-400	TR,2SD734(E,F,G)-AA
Q4005	87-026-228-080	TR,DTA124EK
Q4006	87-026-613-080	TR,2SC2274K(E,F
Q4007	87-026-613-080	TR,2SC2274K(E,F)
Q4008	87-026-411-080	TR,DTC144EKAT146
Q4009	89-324-122-080	TR,2SC2412KT
Q4011	89-110-372-080	TR,2SA1037AK
Q4501	87-026-235-080	TR,DTC114EKAT146(HV-GX950K)
Q4502	89-109-330-010	TR,2SA933STP(HV-GX900K)
Q4503	87-026-236-080	TR,DTC124EK(HV-GX900K)
Q4505	87-A30-246-040	TR,2SA1037AKT146(HV-GX950K)
Q4506	87-A30-273-040	TR,DTC124EKAT146(HV-GX950K)
Q4801	89-324-122-080	TR,2SC2412KT
Q4802	89-110-372-080	TR,2SA1037AK
Q6001	89-324-122-080	TR,2SC2412KT(HV-GX950K)
Q6003	89-324-122-080	TR,2SC2412KT

*** COILS ***

REF.NO.	PART NO.	DESCRIPTION
B501	S2-46T-035-840	CORE,BEADS BF40DTA-3.5
B503	S2-46T-035-840	CORE,BEADS BF40DTA-3.5
B504	S2-46T-035-840	CORE,BEADS BF40DTA-3.5
L501	87-005-688-080	COIL,22UH
L502	87-005-688-080	COIL,22UH
⚠ L503	S2-9T0-000-830	COIL,LINE FILTER 0R3A433F20
L4003	87-003-152-010	COIL,100UH
L4004	87-005-196-010	COIL,10UH
L4005	S3-162-600-880	COIL,BIAS OSC
L4006	87-003-112-010	COIL,1MH
L4007	87-003-285-010	COIL,39UH
L4009	87-003-152-010	COIL,100UH
L4011	87-003-282-010	COIL,12UH

*** COILS ***

REF.NO.	PART NO.	DESCRIPTION
L4012	87-003-154-080	COIL,220UH
L4013	87-003-152-010	COIL,100UH
L4015	87-003-152-010	COIL,100UH
L4501	87-005-688-080	COIL,22UH(HV-GX950K)
L4503	87-003-152-080	COIL,100UH(HV-GX950K)
L4504	87-003-147-010	COIL,22UH
L4505	87-003-152-080	COIL,100UH(HV-GX950K)
L4506	87-005-688-080	COIL,22UH(HV-GX950K)
L4507	87-003-147-010	COIL,22UH
L4512	87-005-429-080	COIL,5.6UH(HV-GX950K)
L4801	87-003-152-010	COIL,100UH
L4802	87-003-152-010	COIL,100UH
L4803	87-003-152-010	COIL,100UH(HV-GX950K)
L4806	87-003-148-010	COIL,33UH
L4807	87-003-285-010	COIL,39UH
L6001	87-003-152-010	COIL,100UH(HV-GX900K)
	87-005-696-080	COIL,100UH(HV-GX950K)
L6002	87-003-152-010	COIL,100UH
L6004	87-005-696-080	COIL,100UH

*** TRANSFORMER ***

REF.NO.	PART NO.	DESCRIPTION
⚠ T501	S4-812-801-740	TRANS,SWITCHING 8128017

*** JACKS ***

REF.NO.	PART NO.	DESCRIPTION
J4501	S6-3G1-000-420	SOCKET,21PIN 0350_9982_05(HV-GX900K)
	S6-3G1-000-410	SOCKET,21PIN 035_0_8083_00(HV-GX950K)

*** SWITCH ***

REF.NO.	PART NO.	DESCRIPTION
SW1001	S5-082-210-010	SW,LEAF

*** CONNECTORS ***

REF.NO.	PART NO.	DESCRIPTION
CP506	S6-943-200-490	CORD,CONNE
CP652	S6-9E2-501-290	CONN,PWB SIDE
CP1002	S6-9R7-500-280	CONN,PWB SIDE 52045-0545
CP1003	S6-972-805-900	CONN PWB SIDE
CP1004	S6-9R7-400-280	CONN,52045-0445
CP4001	S6-972-406-000	CONN,PWB SIDE
CP4003	S6-971-203-200	CONN

*** CRYSTAL & CERAMIC OSCILLATORS ***

REF.NO.	PART NO.	DESCRIPTION
X1001	S0-0CT-012-070	X'TAL HC-49/U-S
X1002	S0-0D3-2R8-010	X'TAL,32.768K
X4001	S0-0CF-4R4-010	X'TAL HC-49/U

*** TUNER ***

REF.NO.	PART NO.	DESCRIPTION
⚠ TU6001	S1-62T-070-080	RF UNIT MRF11-UB51

*** FUSES ***

REF.NO.	PART NO.	DESCRIPTION
⚠ F501	S8-0PT-1R6-020	FUSE,21801.6
FH501	S6-710-T00-060	HOLDER,FUSE EYF-52B
FH502	S6-710-T00-060	HOLDER,FUSE EYF-52B

*** OTHERS ***

REF.NO.	PART NO.	DESCRIPTION
CP1001	S6-CH2-207-6A0	CORD CONN CH22076A
OS651	S7-710-000-130	REMOTE RECEIV PNA4612M00Y
V651	S9-6F7-9R0-040	FL,SVV-07SS22

ELECTRICAL REPLACEMENT PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
		OPERATION 1 PCB ASS'Y
		*** SWITCHES ***
SW601	S5-042-01T-320	SW,TACT
SW602	S5-042-01T-320	SW,TACT
SW603	S5-042-01T-320	SW,TACT
SW604	S5-042-01T-320	SW,TACT
SW605	S5-042-01T-320	SW,TACT
SW606	S5-042-01T-320	SW,TACT
		OPERATION 2 PCB ASS'Y
		*** DIODE ***
D601	S0-213-5Q1-600	LED,SLZ-345B-02
		*** TRANSISTOR ***
Q601	87-026-286-010	TR,DTA143ES
		*** SWITCHES ***
SW607	S5-042-01T-320	SW,TACT
SW608	S5-042-01T-320	SW,TACT
SW609	S5-042-01T-320	SW,TACT
SW610	S5-042-01T-320	SW,TACT
		*** OTHER ***
CD602	S6-CH2-508-2A0	CORD CONN CH25082A
		AND OTHERS
		*** AC CORD ***
⚠ CD501	S2-066-358-170	CORD AC BUSH 06635817

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アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2–11, IKENOHATA 1–CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03 (3827) 3111

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